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THE EFFECTS OF INCORPORATING INTERACTIVE QUESTIONING DURING
SHARED ELECTRONIC BOOK READING ON PRESCHOOLERS'

COMPREHENSION

By

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A Dissertation Submitted to the Faculty of
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ABSTRACT

THE EFFECTS OF INCORPORATING INTERACTIVE QUESTIONING DURING SHARED ELECTRONIC BOOK READING ON PRESCHOOLERS' COMPREHENSION

Lynda G. Salmon
Old Dominion University, 2015
Director: Angela L. Eckhoff, PhD.

The purpose of this study was to examine the potential effects of parental interactive questioning during shared electronic book reading on preschoolers' comprehension outcomes and secondly to assess the effects of parent training on post-intervention parental interactive behaviors during shared electronic book reading. Four parent-child dyads participated in this seven week multiple baseline study. Participants were recruited from a suburban preschool in southeastern Virginia and child participants' ages ranged from 48 to 68 months ($M = 55.75$). Pre-intervention and post-intervention assessments evaluated the child participants' comprehension skills and the parent-child dyad's interactive behaviors during shared electronic book reading. Child participants' story understanding was measured by comprehension questions and elicited story retellings and tracked through baseline, intervention, and maintenance phases. While all child participants showed gains in comprehension skills and parents increased interactive questioning skills, results showed that the level of intervention effectiveness differed among the participants across measures. This study contributed to the emerging literature base focusing on the effects of parental support during shared electronic book reading on literacy skill development. Findings suggest that training parents and teachers to scaffold comprehension skills during electronic reading may provide added benefits for comprehension skill development.

DEDICATION

The journey of a thousand miles begins with one step.

Lao-tzu

The only journey is the one within.

Rainer Maria Rilke

This dissertation is dedicated to the eleven-year-old girl who sat in a yellow buttercup dress amongst her classmates during sixth grade graduation ashamed of not being enough, while singing the words to “Climb Every Mountain” as if her life depended upon it. This dissertation is dedicated to every person, young or old, who has been told that stars and dreams are beyond reach, and that circumstances define who you are. This moment of victory attests to the fallacy of those beliefs and reaffirms the resilience of the human spirit with which we are all endowed. This dissertation is dedicated to the myriad angels who serendipitously shared the steps on my journey briefly or for the duration. Their encouragement and selfless acts of support lifted my spirit so many times and reminded me of the transformation that was occurring within. This journey of a thousand steps has always been about discovery. Finally, this dissertation is dedicated to those whose passion for learning lights the path and reminds future generations of their brilliance.

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TABLE OF CONTENTS

	Page
LIST OF TABLES	x
LIST OF FIGURES	xi
 Chapter	
1. INTRODUCTION	13
Background	13
Literacy Development	14
Literacy Support	15
Purpose Statement	17
Research Questions	17
Delimitations	18
Assumptions	18
Significance of Study	18
Overview of Methodology	20
Definition of Terms	21
Electronic Books	21
Hot Spots	21
Interactive Reading	22
Chapter Summary	22
Organization of the Study	22
2. LITERATURE REVIEW	23
Introduction	23
Theoretical Framework	24
Purpose of Study	27
Comprehension Development	28
Emergent Comprehension	29
Constrained and Unconstrained Reading Skills	31
The Importance of Vocabulary on Comprehension Development	32
Narrative Comprehension and Narrative Retellings	35
Strategies That Support Comprehension Skills in Early Childhood	38
Interactive Reading	39
The Influence of Interactive Questioning on Retellings	40
Dialogic Reading	41
Classroom Read Alouds	45
Measuring Comprehension Skills	49
Electronic Books and Literacy Development	52
Advantages of Electronic Books	52
Disadvantages of Electronic Books	54
Quality of Electronic Books	55

Specific Features and Emergent Literacy Outcomes	57
Electronic Books and Comprehension Development	57
Factors that Influence Comprehension	59
Influence of Adult Involvement during Shared Electronic Book Reading	62
Chapter Summary	64
3. METHODOLOGY	66
Chapter Overview and Research Questions.....	66
Participants and Inclusion Criteria.....	67
Child Participants.....	68
Parent Participants	69
Protection of Participants.....	70
Study Design.....	70
Measurements	71
Adult/Child Interactive Reading Inventory	72
Early Literacy Skills Assessment.....	73
Researcher Developed Comprehension Questions	75
Narrative Retellings	76
Setting and Materials	79
Setting	79
Materials	79
Procedure	83
Component 1	83
Component 2.....	84
Component 3.....	86
Data Analysis	87
Internal and External Validity.....	88
Fidelity of the Intervention	89
Reliability.....	89
4. RESULTS	91
Introduction and Chapter Overview.....	91
Section 1.....	92
Parent Information Form.....	92
Section 2.....	93
Results for the Early Literacy Skills Assessment	93
Results for Comprehension Questions and the Narrative Retellings.....	96
Child 1.....	98
Comprehension Questions	98
Narrative Retellings	99
Summary of Results for Child 1	100
Child 2.....	101
Comprehension Questions	101
Narrative Retellings	102
Summary of Results for Child 2	104
Child 3.....	104

Comprehension Questions	104
Narrative Retellings	105
Summary of Results for Child 3	107
Child 4.....	107
Comprehension Questions	108
Narrative Retellings	109
Summary of Results for Child 4	110
Analysis of Correct Responses to Types of Questions	110
Combined Results for Comprehension Questions and Retellings	112
Estimate of Intervention Effectiveness	117
Section 3.....	118
Results for the Adult/Child Interactive Reading Inventory	118
Parent – Child Dyad 1	120
Parent – Child Dyad 2.....	122
Parent – Child Dyad 3.....	123
Parent – Child Dyad 4.....	124
Parent and Child Comparisons of Total ACIRI Mean Scores	125
Results for Combined Categories of Promoting Interactive Reading and Supporting Comprehension and Using Literacy Strategies	126
Summary	128
Section 4.....	128
Implementation Fidelity	128
Reliability.....	130
Social Validity	132
5. DISCUSSION	135
Introduction.....	135
Study Overview	135
Discussion of Study Findings	137
Limitations	143
Implications for Current Practice.....	144
Implications for Further Research	147
Conclusions.....	149
REFERENCES	151
APPENDICES	175
A. Parent Recruitment Letter	175
B. Parent Information Form.....	176
C. Comprehension Assessment and Scoring Forms	178
D. Elicitation Protocol for Narrative Retelling	191
E. Narrative Scoring Scheme.....	192
F. Criteria for Evaluating CD-ROM Storybooks for Young Children	194
G. Parent Training Presentations	195
H. Parent Questioning Protocols.....	203
I. Parent Responses: “What do I say when . . .”	223

J. Parent Satisfaction Survey.....	224
K. Parent Trainer Fidelity Checklists.....	225
L. Fidelity for Administration of Comprehension Assessments.....	228
M. Checklist for Parent’s Fidelity to Intervention Protocol	229
N. Parents’ Narrative Responses to Parent Satisfaction Survey	230
8. VITA.....	231

LIST OF TABLES

Table	Page
1. Criteria for Participant Inclusion in Study	68
2. Child Participants' Demographic Information.....	69
3. Parent Participants' Demographic Information	70
4. Research Questions and Associated Measures	72
5. Selected Storia® Enriched Electronic Books	80
6. Evaluation Results for Selected Electronic Books.....	82
7. Total Scores, Means, and Percentage Increases for Comprehension Questions and Narrative Retellings	97
8. Child Participants' Percentage Change for Correct Responses to Types of Questions	111
9. Percentage Change in Child Participants' Pre- and Post-Intervention Mean Scores on Comprehension Assessments.....	113
10. Percentage of Nonoverlapping Data (PND) and Corresponding Estimates of Intervention Effectiveness	117
11. Parents' Pre- and Post-Intervention Interactive Behaviors	119
12. Child Participants' Pre- and Post-Intervention Interactive Behaviors	120
13. Tallied Results for ACIRI's Promoting Interactive Reading and Using Literacy Strategies Components.....	127
14. Results for Parent Satisfaction Survey.....	133

LIST OF FIGURES

Figure	Page
1. The Relationship between the Zone of Proximal Development and Scaffolding	27
2. Child Participants Pre- and Post-Intervention ELSA Raw Scores for Comprehension	94
3. Child Participants' Pre- and Post-Intervention Comprehension Literacy Literacy Developmental Levels	95
4. Child 1: Trend Line for Comprehension Scores during the Intervention Phase	99
5. Child 1: Trend Line for NSS Scores during the Intervention Phase	100
6. Child 2: Trend Line for Comprehension Scores during the Intervention Phase	102
7. Child 2: Trend Line for NSS Scores during the Intervention Phase	103
8. Child 3: Trend Line for Comprehension Scores during the Intervention Phase	105
9. Child 3: Trend Line for NSS Scores during the Intervention Phase	107
10. Child 4: Trend Line for Comprehension Scores during the Intervention Phase	109
11. Child 4: Trend Line for NSS Scores during the Intervention Phase	110
12. Multiple Baseline Graph for Comprehension Questions in Baseline, Intervention, and Maintenance Phases for Child Participants	115
13. Multiple Baseline Graph for Narrative Scoring Scheme Results for Child Participants	116
14. Parent-Child Dyad 1: Pre-Intervention and Post-Intervention Mean Scores for ACIRI Components and Their Total Mean	121
15. Parent-Child Dyad 2: Pre-Intervention and Post-Intervention Mean Scores for ACIRI Components and Their Total Mean	122
16. Parent-Child Dyad 3: Pre-Intervention and Post-Intervention Mean Scores for ACIRI Components and Their Total Mean	123
17. Parent-Child Dyad 4: Pre-Intervention and Post-Intervention Mean Scores for ACIRI Components and Their Total Mean	124

18. Parent and Child Participants' Total Mean ACIRI Scores125

CHAPTER 1

INTRODUCTION

Children who are read to early and often succeed not because of the simple fact that they are exposed to books but because the opportunity to engage in these shared experiences is a function of the quality of their engagement in the experience, the particular strategies utilized by their parent or teacher, and their interpersonal relationship with adults.

(Cunningham & Zibulsky, 2011, p. 409)

Background

Maria, an alert three-year-old, is waiting at the crowded pediatrician's office with her mother for her annual check-up. In the waiting room, puzzles, books, and games are provided at various developmental levels. Mom hands Maria her iPhone and picks up a magazine. Maria skillfully finds her favorite story and continues to amuse herself for the remaining half hour. Listening to stories on mobile devices such as iPads and Smartphones may be a common occurrence for many young children who are considered 'digital natives' by virtue of being born in the digital age (Prensky, 2005). It is obvious that Maria at such a young age is adept at navigating through the story.

Scenarios such as this one suggest that the traditional practice of shared reading in which literacy skills are fostered may be impacted by the growing popularity of electronic books. This alternative format to print text engages the child in the story through multi-media animations, music, and games. Common Sense Media, a nonprofit organization that studies the effects of media on young children, reported results of a cross-sectional survey of parents ($N = 1,463$) in the United States in 2013 (Rideout, 2013). Results disclosed that 30% of children within the category of birth to eight years of age had read an electronic book on a mobile device demonstrating a significant

increase from the 4% that was found in their baseline study in 2011 (Rideout, 2013).

With an increase of this significance, understanding the influence that electronic books have on young children's emergent literacy development and parental involvement warrants further investigation (Roskos, Brueck, & Widman, 2009).

Literacy development. The influence of electronic books on kindergarten readiness is an important consideration because statistics reveal that one in three children has not mastered the necessary readiness skills to assure an adequate foundation for kindergarten success (Carter, Chard, & Pool, 2009). Attainment of early literacy skills has shown to be predictive of later reading and academic success (Kurdek & Sinclair, 2001; Whitehurst & Lonigan, 2002). "By definition, emergent literacy references the processes, skills, and dispositions related to the later development of conventional reading and exhibited by young children, from birth to the onset of conventional reading," (Dooley & Matthews, 2009, p. 270). These skills include phonological awareness, concepts about print, and language development (National Early Literacy Panel, 2008). The National Early Literacy Panel (2008) maintains that these skills are interdependent, related, increase in complexity, and are fundamental to successful reading attainment. While phonological awareness and concepts about print are mastered early in the reading process, comprehension is ongoing and integral to continual reading proficiency (Paris, 2005). Consequently, attention to literacy attainment is important in order to prevent an early knowledge gap at the onset of school that may result in an ongoing achievement gap throughout formal education (Dyson, 2010; Neuman, 2006; Whitehurst & Lonigan, 2002). Students unable to bridge this gap are linked to increased numbers in special education placement, unemployment, poverty, incarceration, and low

educational attainment (Sharif, Ozuah, Dinkevich, & Mulvihill, 2003; Whitehurst & Lonigan, 2002). To circumvent these outcomes, it is imperative that young children receive early support to develop the essential skills needed for future success.

Parents are in a unique position to affect their child's literacy development. Research studies have demonstrated that parental shared book reading is one of the foundational practices to facilitate the acquisition of the emergent literacy skills essential to school readiness (Bus, Van IJzendoorn, & Pellegrini, 1995; Cunningham & Zibulsky, 2011; Flouri & Buchanan, 2004). Findings reveal that the quality and characteristics of interactive behaviors between an adult and child during the shared reading process affect literacy development and achievement (Blewitt, Rump, Shealy, & Cook, 2009; DeBruin-Parecki, 2009) and can vary across text formats (Moody, Justice, & Cabell, 2010). These behaviors focus on encouraging discussion through questioning strategies and responses to children's spontaneous comments while reading the story, in contrast to the child listening passively. Some parents and caregivers may not be aware that merely reading the text without providing interactive discussion could lessen the foundation for a successful school reading experience (Phillips, Norris, & Anderson, 2008). Without interactive discussion during shared reading, the child's comprehension skill development and meaning making processes may be neglected.

Literacy support. Parental interventions designed to accelerate and promote language development, comprehension, and vocabulary acquisition are often needed to meet their children's literacy needs (Marulis & Neuman, 2010; Padak & Radinski, 2007). Parent literacy interventions using print text have been shown to increase reading frequency and literacy support with positive outcomes in emergent literacy skills (Arnold,

Lonigan, Whitehurst, & Epstein, 1994; Cook-Cottone, 2004; Hargrave & Sénéchal, 2000). Consequently, training parents to incorporate reading strategies during shared book reading offers the potential for children to acquire a stronger foundation for developing literacy skills prior to formal reading instruction (Piasta, Justice, McGinty, & Kaderavek, 2012). Dialogic reading is a prominent interactive reading strategy that when taught to parents yields positive effects on oral language (Cunningham & Zimulsky, 2011). Similarly, teacher facilitated interactive question prompts and behaviors during read alouds have been shown to enrich the learning experience and influence children's story retellings and story understanding when using print text (Brabham & Lynch-Brown, 2002; DeBruin-Parecki, 2009; Pardo, 2004). Thus, incorporating higher-level questions (i.e., inferential questions) during shared reading is a recommended practice to promote comprehension and increase vocabulary development (Hogan, Bridges, Justice, & Cain, 2011).

While these strategies have been shown to be effective with print text during shared reading practices, their impact on comprehension during shared electronic book reading is a new area to be explored. The current literature base discloses positive benefits for children who receive adult support during shared e-book reading in word reading, phonological awareness, and concepts about print (Korat, Segal-Drori, & Klein, 2009; Segal-Drori, Korat, Shamir, & Klein, 2010). It also reveals that interactive practices between the child and parent are not consistent and vary across text formats (Kim & Anderson, 2008; Korat & Or, 2010; Wood, Pillinger, & Jackson, 2010). Identification and knowledge of supportive comprehension practices may influence parents' perceptions and involvement when their young child is reading electronic books.

The possibility exists that electronic books may eventually serve as the primary source of literature both at-home and in school. The International Reading Association (2009) asserts that integration of information and communication technology skills are vital to meet the demands of the 21st century technologies and prepare students for the future. Young children's first introduction to digital text may be through electronic storybooks in a home situation. Examining electronic books' utility as a comprehension support when read independently or interactively with a parent is needed to determine best practices in order to assure that young digital natives acquire the foundation needed to succeed in a digital world.

Purpose Statement

This study addressed the need for more empirical research to be devoted to comprehension skill development in young children (National Literacy Panel, 2008; Paris & Hamilton, 2009). The purposes of this study were to examine the potential effects of parental support during e-book shared reading on preschoolers' comprehension outcomes and to determine if an interactive questioning intervention will affect parental shared e-book reading interactive behaviors post-intervention.

Research Questions

The research questions for this research study were:

1. In what ways does an adult interactive questioning intervention during shared reading of electronic books impact preschool students' comprehension scores?
2. What are the effects, if any, of training parents to implement questioning strategies during shared electronic book reading on subsequent parental behaviors during shared electronic book reading?

Delimitations

The following delimitations may have narrowed the study's internal validity and generalizability:

1. The single case subject research design consisted of four parent-child dyads. Factors not included in the analysis were the parents' levels of technology experience, knowledge of comprehension skill development, and beliefs about e-book utilization.
2. Observations of parents reading to their children took place in the preschool setting. Different reading practices may have occurred in the natural home setting.
3. Time constraints: The parent intervention consisted of one-training and scripted question protocols that were provided for six shared e-book reading sessions. Longitudinal data is not available to assess application of interactive questioning strategies over time by parents.

Assumptions

This study was undertaken based on the following assumptions:

1. Electronic books are engaging to preschool children.
2. Parents will participate with compliance and integrity to research protocol.
3. The participants in this study deem literacy acquisition as important to their children.

Significance of Study

Even though research attention targeting the influence of electronic books on literacy development has expanded in the past 20 years, (Larson, 2010; Zucker, Moody,

& McKenna, 2009) specific attention to parental involvement, strategy training, and comprehension development is limited. This study extended research in the electronic book field by increasing the understanding of (1) the e-book's utility as an educational resource to advance comprehension development in young children, (2) the influence of interactive questioning on preschool children's comprehension skills when shared reading with e-books, and (3) the effects of a parent intervention on shared electronic book reading behaviors. This study developed a parent intervention protocol which incorporated strategies derived from dialogic reading (Whitehurst, Falco, Lonigan, Fischel, Baryshe, Valdez-Menchaca et al., 1988), read alouds (Scharlach, 2008; Wiseman, 2011), and interactive reading research (DeBruin-Parecki, 2009; Santoro, Chard, Howard, & Baker, 2008) while taking into account the interactive features of electronic books.

Also significant to this study was the utilization of Storia® commercial electronic books, a division of Scholastic Inc. (Robinson, 2014). Storia® enriched e-books offered electronic books of popular titles that were enriched with interactive learning prompts that could be accessed throughout the story. In this study, the participants read multiple electronic books in contrast to studies that primarily used a single electronic book (Korat, 2010; Korat & Shamir, 2012; Trushell, Burrell, & Maitland, 2001; Trushell, Maitland, & Burrell, 2003) or e-books that were researcher designed or modified (Chera & Wood, 2003; Gong & Levy, 2009; Korat & Shamir, 2007, 2008; Shamir, 2009; Smeets & Bus, 2012). The use of 12 different books in the study protocol assured that the assessment results were not influenced by a single story structure that the participant may, or may not comprehend, or had prior experience reading.

Redefining the parent's role and understanding the influence of e-books on comprehension during electronic shared book reading are pertinent to parents, educators, and those who shape educational policy in an effort to provide optimal conditions for learning prior to formal schooling. The information gleaned from this study expanded the extant research base and supported the need to continue investigating the effects of specific parental practices on comprehension outcomes when interacting with electronic books.

Overview of Methodology

This seven week study utilized a within subjects multiple-baseline single case research design (SCRD) with comprehension achievement as the dependent variable and interactive questioning strategies as the independent variable. A convenience sample of four parent-child dyads (child's age = 4-5 years old) were recruited from a local preschool in southeastern Virginia. The Early Literacy Skills Assessment (ELSA) (DeBruin-Parecki, 2005) was used to measure emergent literacy skills pre- and post-intervention. Composite scores as well as individual results on comprehension subtest scores were recorded and analyzed. The Adult/Child Interactive Reading Inventory (ACIRI) (DeBruin-Parecki, 2007) was conducted pre- and post-intervention to quantify specific interactive behaviors initiated by the parent and child during a videotaped electronic book reading session. Prior to the intervention, the researcher trained the research team members how to score the assessments and parents regarding implementation of interactive questioning strategies and the intervention protocol.

Following the initial assessments, children's comprehension was measured using researcher-developed comprehension questions and children's story retellings during

baseline (2-4 sessions) and intervention phases (six sessions). Parents employed a scripted protocol during the intervention phase that asked literal, inferential, questions and focused the child's attention on the storyline following access to interactive e-book features. The maintenance phase occurred one week following the final session in the intervention phase. The researcher conducted post-intervention administration of the ELSA and ACIRI. All data was collected and scored by the researcher and research team members. Basic line graphs present participants' comprehension scores and retelling scores individually and across subjects for visual analysis. Visual analysis is a standard practice in single case research that facilitates identifying changes in targeted behaviors individually and across subjects (O'Neill, McDonnell, Billingsley, & Jenson, 2011).

Definition of Terms

Electronic books. Electronic books include CD-ROM storybooks, DVDs, e-books, computer books, interactive books, and digital books (De Jong & Bus, 2003; Pearman & Chang, 2010). The terms "electronic book" and "e-book" are used interchangeably throughout this study. Mechanisms referred to as interactive features can be accessed in the story or in different modes (De Jong & Bus, 2003). Audible narration, word meanings, pronunciations, cued animations, sound effects, question prompts, multi-media effects, puzzles, games, and video are common features provided in electronic books (Labbo & Kuhn, 2000; Larson, 2010; Lewin, 2000).

Hot spots. Hot spots are accessed by the reader clicking or tapping on a cue or graphic to activate interactive features such as music or animations (Moody, Justice, & Cabell, 2010). Hot spots can be supportive or incidental to the story line (Gong & Levy, 2009; Korat & Shamir, 2012; Pearman & Chang, 2010).

Interactive reading. Interactive reading pertains to the discussions that occur between the child and adult during shared book reading. Expansion of the child's thinking process is stimulated as a result of intentional question prompts and adult's responses to the child's remarks (Wiseman, 2011; McKeown & Beck, 2006).

Chapter Summary

Chapter 1 provided background and a rationale for a research study, which examined the potential effects, if any, of parental interactive questioning during shared electronic book reading on preschoolers' comprehension achievement. The purpose of the study and the research questions were proposed. The methodology chosen was single subject case research design that utilized a parent intervention to explore the influence of parental interactive questioning during shared electronic book reading on comprehension outcomes. The significance of the study, delimitations, assumptions, and definitions of terms were also included.

Organization of the Study

The following four chapters, references, and appendices comprise the remainder of the study. Chapter 2 reviews literature related to the research question on preschool comprehension skills, interactive reading strategies, and electronic books as a literacy support. Chapter 3 outlines the methodology including sample selection, data collection, procedures, and measurements utilized. The presentation of results and the data analysis is contained in Chapter 4. Finally, Chapter 5 includes a discussion of the results, limitations, and implications for current practice and future research.

CHAPTER 2

LITERATURE REVIEW

This perspective assumes the primacy of singular book literacy; that is, technology is used to teach the skills required to read a book. It fails to recognize that new technologies transform the very nature of literacy, requiring new skills, strategies, and insights to read, write, communicate that transcend those required to be literate with traditional book technologies. (Karchmer, Mallette, & Leu, 2003, p. 177)

Introduction

For many children, the preschool years are a time when emergent literacy skill development is fostered by shared book reading, verbal interaction, and activities that co-construct meaning making (Whitehurst & Lonigan, 2002). These activities are essential to early comprehension development, which is recognized as a significant counterpart to text-decoding skills as a predictor of future reading achievement (Paris & Paris, 2003). This is also a time when many young children engage in screen media through the use of mobile devices. The national representative survey, previously mentioned, revealed that 80% of children between 2 and 4 years of age have used a mobile device to play games and read books (Rideout, 2013). Increasing e-book sales also confirm electronic books' presence in a digital world (Memmott, 2011). As a result, examination of their impact on literacy, comprehension, and parent reading practices has gained attention in the field (Kim & Anderson, 2008; Korat, 2010; Korat & Or, 2010). As Karchmer, Mallette, and Leu (2003) propose in the opening quote to this chapter, an innovative approach is required in a technological age to foster literacy and expand the traditional strategies currently being used. Uniting effective reading strategies, technology, and socially mediated interaction offers an initial step to potentially expand the literacy experience and comprehension development.

Theoretical Framework

The theoretical framework for this study is based on Vygotsky's sociocultural cognitive theory that postulates cognitive development as an interactive social process that cannot be separated from the locus of cultural, historical, and institutional settings (Semin & Smith, 2013; Vygotsky, 1978; Wertsch, 1991). He proposed that the interdependence between the socially mediated experience and the process in which cultural cognition is internalized, results from a progression of developmental transformations that occur over time. He states,

Every function in the child's cultural development appears twice: first, on the social level, and later, on the individual level; first between people (interpsychological), and then inside the child (intrapsychological). This applies equally to voluntary attention, to logical memory, and to the formation of concepts. All the higher functions originate as actual relations between human functions. (Vygotsky, 1978, p. 57)

As a result of this continued social interaction over time, new strategies, skills, and thought processes that were influenced by the culture, prior knowledge, and experience are learned and internalized (Vygotsky, 1978).

Within the broad context of the sociocultural theory, Vygotsky (1978) stressed the importance of social interaction in education. He believed that learning and instruction should be developmentally appropriate and can be positively mediated by the interactions of a more knowledgeable person who can be a mentor, adult, or peer. He presented the concept that developmental levels were not confined to a single stage or point in time, but rather exists in a zone. He coined the term 'zone of proximal development' (ZPD; Vygotsky, 1978, p. 85) and defined it as "the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or

in collaboration with more capable peers,” (Vygotsky, 1978, p. 86). Vygotsky (1978) differentiated levels of the ZPD to represent the lower or actual level of development, which is preceded by skill mastery, and the potential level of development that is inclusive of skills or knowledge not yet realized. In his perspective, the ZPD for a particular skill continues through a developmental course that varies with the type of skills, duration, and the initial skill level as mastery is attained. Vygotsky demonstrated that through attention to the ZPD, learning could lead development rather than follow it (Vygotsky, 1978). Consequently, progression through the zone is dependent upon the social interaction that is developmentally appropriate when supporting skill development.

Scaffolding is a metaphorical concept that is often associated with Vygotsky’s notion of the zone of proximal development (Pea, 2004). Wood, Bruner, and Ross (1976) developed the concept to describe the interaction that takes place when adults assist children’s learning processes in order to increase specific cognitive or developmental skills that are beyond the child’s capability. Scaffolding occurs within the zone of proximal development through social interaction (Walqui, 2006). As the child gradually progresses toward mastery of the goal or task, the adult or mentor increasingly removes the feedback and assistance until independent mastery is realized (Wood, Bruner, Ross, 1976). For example, acquisition of literacy skills are scaffolded during shared reading when socially mediated conversations include questions that are relevant to the story, target unfamiliar vocabulary, and prompt personal connections. As comprehension and reading skills develop, question difficulty can increase or the mentor can provide opportunities for the child to read independently and ask questions at another time.

The framework of this study was aligned with Vygotsky's (1978) sociocultural cognitive learning theory and the concept of scaffolding and the zone of proximal development. Figure 1 illustrates the framework that demonstrates how increased comprehension can potentially occur. The child enters the shared reading experience with existing background knowledge, experiences, and comprehension skills that have been learned and internalized through social interaction. Within the social context of shared reading, the parent and child interact and discuss story structure. In order to facilitate acquisition of the next level of comprehension within the child's ZPD, the parent scaffolds story understanding by asking questions that require answers representative of literal and inferential thinking responses, and also responds to the child's questions. The child's comprehension skills may be further scaffolded by providing clues to help answer a challenging question. In addition, the unique format of the electronic book, learning activities, and question prompts can potentially function as technological scaffolds, as well as mediate the thinking process (Pea, 2004). This combination offers an opportunity and situation for the child to begin internalizing more sophisticated levels of the comprehension strategies and apply them independently when reading in the future, thereby establishing a new ZPD. This corroborates Vygotsky's thoughts on preschoolers and the intention of this study, ". . . what is in the zone of proximal development today will be the actual developmental level tomorrow-that is, what a child can do with assistance today she will be able to do by herself tomorrow," (Vygotsky, 1978, p.86). Figure 1 presents the relationship between the ZPD and scaffolding.

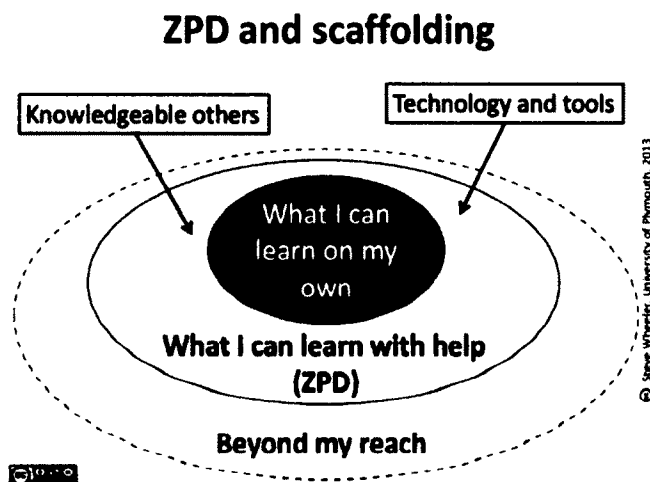


Figure 1. The Relationship between the Zone of Proximal Development and Scaffolding.

Downloaded from <http://steve-wheeler.blogspot.com/2013/05/learning-theories-for-digital-age.html>

Purpose of Study

Situated in the context of sociocultural cognitive theory (Vygotsky, 1978) with particular emphasis on the concept of scaffolding (Wood, Bruner, & Ross, 1976) and the notion of the zone of proximal development (Vygotsky, 1978), the purpose of this study was to examine the potential effects of parental support during e-book shared reading on preschoolers' comprehension outcomes. The following research questions were addressed:

1. In what ways does an adult interactive questioning intervention during shared reading of electronic books impact preschool students' comprehension scores?
2. What are the effects, if any, of training parents to implement questioning and retelling strategies during shared electronic book reading on subsequent parental behaviors during shared electronic book reading?

The systematic review of the literature presented in this chapter examines comprehension, questioning strategies, and electronic books as they pertain to the purpose of this study. Empirical evidence is sourced to identify strategic practices that affect comprehension outcomes using either text or electronic book formats as a guide for developing the intervention used in this study in an effort to affect the quality of parental electronic reading engagement and children's comprehension outcomes. The literature reviewed is composed of peer-reviewed journal articles, meta-analyses, and empirical studies. Studies were also selected if they provided a foundational aspect to a path of research, or were frequently cited as significant to the field, or if they offered a unique perspective in the extant literature. The majority of studies reviewed target preschool–third grade students in home and school contexts across diverse ethnic and socioeconomic groups.

This chapter is organized into four sections: (1) comprehension development in young children, (2) comprehension assessment in young children, (3) interactive reading strategies, and (4) electronic books as a literacy resource. This literature review will establish a foundation for the proposed methodology in chapter three.

Comprehension Development

Comprehension is a complex process. This is demonstrated in The RAND Reading Study Group's (2002) definition of comprehension as "the process of simultaneously extracting and constructing meaning through interaction and involvement with written language" (p. 11). Pardo (2004) further clarifies the construction of meaning as being derived from ". . . interacting with text through the combination of prior knowledge and previous experience, information in the text, and the stance the reader

takes in relationship to the text,” (p. 272). For the young child who is not reading, interaction with the text can be initiated by another person or by listening to an e-book story. During the context of every parental shared book reading experience, opportunities exist for the parent to engage and scaffold diverse cognitive practices that help their child to understand text structure, construct mental pictures, recall information, and utilize higher level thinking skills in relation to the text (Kendeou, Lynch, van den Broek, Espin, White, & Kremer, 2005; van den Broek & Kremer, 2000). At the formal reading level, preschool and primary teachers utilize direct strategy instruction to stimulate narrative comprehension individually, in small, or whole group experiences (Coyne, Zipoli, Chard, Fagella-Luby, Ruby, Santoro, & Baker, 2009; McGee & Schickendanz, 2007; Scharlach, 2008). In order to bridge the home experience with formal schooling expectations, a review of the literature base is necessary to provide a more complete understanding of early comprehension as a foundation for identifying effective and developmentally appropriate comprehension strategies that parents can incorporate into their shared reading practices.

Emergent comprehension. Early research supports the developmental nature of comprehension, which increases with complexity as the child develops (Bauer & Mandler, 1992; Bauer & Travis, 1993). Based on a three-year longitudinal study and observational data from 38 preschool children and their families, Dooley and Matthews (2009) introduced Emergent Comprehension as a framework that focuses on the unique meaning-making characteristics of pre-conventional readers. They used a vignette beginning at age two of one child to illustrate the dimensions of their proposed framework.

Dooley and Matthews (2009) contend that Emergent Comprehension occurs during the developmental period in which children engage in experiences that potentially affect the future meaning making skills employed in conventional reading. These experiences not only include exposure to text, but also involve objects, drama, music, daily discussions, and interactions that also stimulate oral language development (Dooley & Matthews, 2009). According to these researchers, factors they identify as influencing the meaning-making process pertain to, "...how young children construct understandings of the world, the progression of how objects, events, actions become symbols to young children, and the central role children's relationships play in their learning," (Dooley & Matthews, 2009. p. 291).

When considering the development of emergent comprehension skills in children, Dooley and Matthew's (2009) propose three principles. They emphasize the sociocultural context in which children's comprehension progresses. During the time in which emergent comprehension develops, the child is dependent on the adult to provide opportunities that promote the mental connections needed to facilitate comprehension of oral language and eventually written text. The principles are:

1. Young children's meaning-construction process proceeds in ways different from older children and adults (Dooley & Matthews, 2009, p. 278).
2. Young children's conception of an object, event, or an action as a symbol develops across time, with experience via interactions with significant others (Dooley & Matthews, 2009, p.281).

3. Relationships-meaning construction begins in the laps and by the sides of primary caregivers and other important adults in young children's lives (Dooley & Matthews, 2009, p.286).

These principles reflect Vygotsky's (1978) emphasis on the sociocultural context needed for cognition to occur. Dooley and Matthew's (2009) principles reinforce the importance of the adult in connection to the progressive development of comprehension skills by the child, and provides the groundwork for making developmentally appropriate decisions. This includes the manner in which comprehension is addressed in conjunction with other emergent literacy skills.

Constrained and unconstrained reading skills. During the last 10 years, there has been a resurgence of interest in comprehension skill development, assessment, and instruction (Pearson, 2009). An understanding of constrained and unconstrained skills provides a clearer understanding of their role in reading development. Paris (2005) explains constrained and unconstrained reading skills. Constrained skills such as alphabetic knowledge, phonological awareness, and reading rate are emphasized and mastered early in the reading process. Whereas, vocabulary acquisition and comprehension, (unconstrained skills) are ongoing, developmentally more complex, and difficult to assess (Paris, 2005; Stahl, 2009). Thus, attention to comprehension skills prior to formal reading instruction (Pearson, 2009) may be minimized even though comprehension development can occur during interactions that support conventional literacy (Dooley, 2010).

As a consequence, seminal research in comprehension has led scholars (Kendou et al., 2005; Paris, 2005; Smolkin & Donovan, 2003; Storch & Whitehurst, 2002; van den

Broek, Kendeou, Kremer, Lynch, Butler, White, & Lorch, 2005) to advocate for emergent comprehension skills and traditional decoding skills to be mutually addressed in early childhood in order to provide a stronger foundation for the older reader. As the developing reader masters language skills, comprehension evolves as the central instructional goal, which can also become the major barrier to reading success (Pearson, 2009). This barrier may be affected by limited vocabulary development prior to school. Therefore, a better understanding of vocabulary's relationship to comprehension is significant.

The importance of vocabulary on comprehension development. Vocabulary development is recognized as essential to reading achievement (National Early Literacy Panel, 2009) and later competency in comprehension (Biemiller, 2006; Scarborough, 2001). The relationship between vocabulary and comprehension is complicated as evidenced by Bauman's statement, "Understanding in what ways they are linked and the nature of associational and causal links between the two, however, has been and remains a psycholinguistic-educational challenge," (Bauman, 2009, p. 339). Consequently, theorists seek to establish relationships and causal connections between vocabulary and comprehension (Bauman, 2009).

Language acquisition begins at birth (Goswami, 2002). Parents play a key role in their child's initial exposure and understanding of words through daily conversation. Hart and Risley (1995) reveal the concerning disparity involved with oral language in the home environment. At four years of age, the number of words heard by children in households receiving welfare assistance is 13 million words, children of working class families are 26 million words, and children of professionals are 45 million words (Hart &

Risley, 1995). Their more recent research revealed that standardized test scores in third grade were associated with the child's vocabulary level at age three (Hart & Risley, 2003). These statistics support the need for interventions during early childhood that target children from low socioeconomic backgrounds and different ability levels. Mediating this deficiency is critical since vocabulary competency can also affect understanding, communication, and writing skills across curricular areas (Stahl & Nagy, 2006; Storch & Whitehurst, 2002).

The strong correlation between vocabulary proficiency and comprehension skills throughout the child's school career (K-12) demonstrates the importance of building vocabulary skills and word knowledge (Beck, McKeown, & Kucan, 2013; Dickinson & Porche, 2011). Shared book reading offers the opportunity to linguistically stimulate and expose the child to vocabulary not ordinarily heard in every day conversations (Sénéchal, Pagan, Lever, & Ouellette, 2008; Wasik & Bond, 2001). Researchers have explored shared book reading practices and their relation to vocabulary development. Findings of Sénéchal et al. (2008) continue to reveal a positive association between shared book reading frequency, the variety of books read, and expressive vocabulary confirming prior studies (Bus et al., 1995; Scarborough & Dolbrich, 1994). Sénéchal et al.'s (2008) study also added a new association to the literature base by showing a positive relationship between shared book reading and comprehension of morphologically complex words, which is also associated with future reading success.

The positive effects of intentional scaffolding of questions from low to high level as the target word becomes more familiar has experimentally been shown to be effective in increasing word understanding and comprehension (Blewitt et al., 2009). Multiple

exposures to new vocabulary words through extension activities, props, appropriate labels, and discussions have also produced higher receptive and expressive vocabulary scores on a standardized measurement demonstrating that children coming from low socioeconomic households can increase their vocabulary given enriching opportunities and trained teachers (Wasik & Bond, 2001; Wasik, Bond, & Hindman, 2006).

However, while shared book reading offers the possibility of exploring unfamiliar vocabulary words, parents often disregard this opportunity. Evans, Reynolds, Shaw and Pursoo's (2011) longitudinal study spanning kindergarten through second grade found that well-educated parents generally ignored the unfamiliar words. The likelihood of parental explanation increased if the unfamiliar word was at the bottom of the page or if the child was reading. Their second study targeting first graders revealed that the child initiated 30% of the discussions, yet only two words were clarified. Parents' explanations rarely facilitated the child in making connections between the word and personal experiences.

Interventions designed to accelerate and promote language and vocabulary development are necessary for at-risk children (Marulis & Neuman, 2010; Padak & Rasinski, 2007). In an effort to determine the most effective practices that affect oral language and vocabulary, Marulis and Neuman (2010) conducted a meta-analysis of 67 studies that also included technological interventions unrelated to reading, but focused on vocabulary involving prekindergarten and kindergarten students. Their findings offer results that are pertinent to vocabulary development, but were relatively disappointing regarding the at-risk children and caregivers targeted to benefit from these interventions. Positive contributing factors to the overall 0.88 effect size of the meta-analyses included

implementation by a trained experimenter or teachers, whole or small group instruction, and explicit versus implicit delivery of word explanation. Lower effect sizes obtained for intervention delivery by childcare providers demonstrates the need for thorough training of direct vocabulary instruction. Increased effort in vocabulary development is vital in light of the findings that demonstrated that the gains of children in poverty did not close the achievement gap and that their middle and upper class counterparts experienced greater growth (Marulis & Neuman, 2010).

The importance of providing rich and varied language experiences becomes essential to set the foundation for language acquisition in early childhood. A review of extant literature demonstrates a lack of attention to instructional strategies that will expand and enrich vocabulary development for the young child (Beck & McKeown, 2007; Biemiller, 2006). Graves (2006) proposes a four-component framework for comprehensive vocabulary instruction, which can be adapted during shared reading with children of all ability levels. Key components are “(1) providing rich and varied language experiences; (2) teaching individual words; (3) teaching word-learning strategies; and (4) fostering word consciousness” (Graves, 2006, p.5). Because vocabulary acquisition is regarded as an important factor in reading comprehension and future reading achievement (Beck & McKeown, 1999; National Reading Panel, 2000), promoting attention to unfamiliar words was addressed in the this study’s parent training and intervention in an effort to increase the likelihood that the child would incorporate new vocabulary in future narrative retellings of events and stories.

Narrative comprehension and narrative retellings. Narrative skills or story telling abilities are rooted in oral language development and have the potential to affect a

child's social skills as well as reading achievement (Spencer & Slocum, 2010). Research recognizes the origins of narrative comprehension as early as 11 months in the retained temporal connections regarding an event (Skarakis-Doyle & Dempsey, 2008). This progresses to an understanding of disjointed elements of the story followed by the time when 3 to 5 year olds gradually exhibit an emerging understanding of the goal-action-sequence in stories. At this age, story retelling expands with the inclusion of characters, setting, and plot followed in later years by story structure (Skarakis-Doyle & Dempsey, 2008).

Creating narrative scripts, or descriptions of events, is a fundamental process in preschool children's cognitive development that links to the meaning making process when listening to others describe an event or reading narrative stories (Dooley & Matthews, 2009). Comprehending narrative text requires the reader to make mental pictures about what is occurring in the text, and then synthesize them into a whole representation of the story (Paris & Hoffman, 2004; Trabasco, Secco, & van den Broek, 1984). Young children typically include changes in characters and events in their narratives or retellings (van den Brock, 1994).

A key element in narrative comprehension and story reconstruction is the process of making inferences in response to the physical and/or motivational connections presented in the story (Kendou et al., 2005). Inference-making skills are developmentally acquired through a progression from concrete to abstract events. In addition, the process not only involves connections made from the text, but also individual associations generated from background knowledge, and an increased memory of events with multiple

causal connections (Kendou et al., 2005). The connections form a mental network, which is accessed when retelling, and recalling text information is requested.

The greater number of causal connections the reader makes increases the likelihood of remembering the story (Kendou et al., 2005; van den Broek, 1994) and including causal connections in story narratives and retellings (Brown, Lile, & Burns, 2011). Furthermore, evidence also reveals that across story formats, such as books and television, (Beck & Clarke-Stewart, 1999; Kendou et al., 2005) increased understanding of story structure and the ability to answer inferential questions is enhanced when certain conditions are present. For instance, a basic competency in language skill development (phonological processing and expressive vocabulary) and maturation have shown to be predictive of understanding causal connections (Brown et al., 2011). In addition, the child is more successful in making appropriate inferences if the story content is concrete, simplistic, or has personal significance to the child (Linebarger & Piotrowski, 2009; Skaraskis-Doyle & Dempsey, 2008; van den Broek et al., 2005; van den Broek, Lorch, & Thurlow, 1996). Examples of the two types of connections are provided by Kendou et al. (2005, p. 92).

Physical connection: **It** was extremely cold outside. The small lake was frozen.

Motivational connection: **David** wanted to buy a laptop but did not have enough money. **He** decided to get a part-time job.

During shared book reading, comprehension can be encouraged if the parent identifies the inferences and then scaffolds inference-making skills by drawing the child's attention to causal connections. For example, the father could inquire after reading the above statements, "Why was the lake frozen?" or "Why did David get a part-time job?"

He can also scaffold inference-making skills by prompting the child to make causal connections from the text or by interpreting illustrations in relation to the text. Typical prompts that would elicit inferences include references to feelings, motives of characters, similarities and differences, meanings of words, and connections to text or personal experiences (Van Kleeck, Woude, & Hammett, 2006).

Van Kleeck (2008) also recommends incorporating both literal and inferential questions during preschool book-sharing interventions. Van Kleeck (2008) outlines beneficial practices when planning interventions. She suggests embedding scripts within the story that include the questions and comments to make in response to the child's elicitation. These scripts assure treatment fidelity and model the necessity of planning the discussion prior to shared-book reading (Van Kleeck, 2008). Other recommended procedures are: provide highly engaging stories, allow the child to lead the interaction, use positive feedback, consider the level of background knowledge in relation to the inference being sought, and discontinue the reading session if the child is uninterested (Van Kleeck, 2008). Questions and prompts that fostered inference making during shared reading of electronic stories were integral to the parents' questioning protocol implemented during the intervention phase of this study.

Strategies that Support Comprehension Skills in Early Childhood

Strategies that transform the reading experience from passive listening to one that engages the child's cognitive thinking through interactive questioning are prevalent in the literature (DeBruin-Parecki, 2009; DeBruin-Parecki & Squibb, 2011; McGee & Schickendanz, 2007; McKeown & Beck, 2006; Santoro, Chard, Howard, & Baker, 2008; Van Kleeck, Woude, & Hammett, 2006; Whitehurst et al., 1988; Wiseman, 2011).

Research results demonstrate that increased literacy development can be achieved through interventions in which parents are provided informational training and strategies (Lever & Sénéchal, 2011; Lonigan & Whitehurst, 1988; Sénéchal & Young, 2008; Sharif et al., 2003). Research focusing on interactive reading, dialogic reading, and teacher read-alouds were explored in an effort to identify strategies that were supportive of comprehension development and potentially incorporated in an intervention using electronic books rather than print text.

Interactive reading. The process of interactive reading has been shown to influence comprehension skills (McKee & Schickedanz, 2007; Santoro et al., 2008). Interactive reading is characterized by expanding the child's thinking processes through parent and child discussions that are initiated by question prompts and adult responses to the child's remarks (McKeown & Beck, 2006; van den Broek et al., 2005; Wiseman, 2011). As the story is read, comprehension skills are supported by opportunities for the child to make predictions, connect ideas from the story to personal experiences and prior knowledge, retell events in a sequential manner, and learn new vocabulary words (DeBruin-Parecki, 2009; DeBruin-Parecki & Squibb, 2011; Santoro et al., 2008).

Questions that follow the child's initiations and responses can also expand the reading experience to require further interpretation, analysis, and critical thinking (Hoffman, 2011). Van Kleeck et al.'s (2006) study provided empirical evidence that demonstrated the positive benefits of embedding literal and inferential questions throughout the story. In their investigation with predominantly African American Head Start preschoolers with language impairments ($N = 30$), vocabulary, literal, and inferential skills showed greater growth when literal and inferential questions were

embedded within the story script. These results support McGee and Johnson's (2003) prior study which found positive benefits in comprehension skills for multi-leveled readers ($N = 75$; age range = 6-9 years) who were provided inference training.

The findings reported suggest that young children have the potential to increase literal and inferential comprehension skills when engaged in structured conditions that promote interactive dialog (Van Kleeck et al., 2006). During the shared book reading process, mothers have been shown to vary levels of question prompts as a means to scaffold understanding and engage their child interactively (Kang, Kim, & Pan, 2009). However, some parents may need more support and a better understanding of the importance of interactive discussion during shared book reading. The parent training and questioning protocol in this study provided exposure and practice with varied levels of questions with the intention of raising awareness and increasing the frequency and level of question prompts during shared electronic book reading.

The influence of interactive questioning on retellings. Minimal research attention has been given to investigating the prospect of using shared book reading as a context to further retelling skills. However, Kang, Kim, and Pan's (2009) preliminary study in this area suggests the importance of the frequency and type of specific interactive questions to enhance comprehension development during shared book reading. Using observations, child assessments, and parent interviews, the researchers identified verbal behaviors and analyzed the retellings of 62 low-income mothers and their preschool children attending an Early Head Start program. Frequency counts of parent and child coded behavior demonstrated a large variation ($SD = 16.52$) in mothers' utterances and large variations (twice the mean) in particular types of children's

utterances. High correlations were found between the quantity of utterances, the type of maternal talk, and children's extra-textual talk. Analysis of maternal utterances indicated an absence of attention to interpreting story events in maternal utterances. Results showed that the largest percentage (18%) of children's responses were to mother's open-ended questions.

Children's retellings were also measured for inclusion of story structural features, microlinguistic features, and major events (Kang et al., 2009). Unexpected findings demonstrated that open-ended questions and questioning frequency were significant predictors of story retellings. Thus, children's engagement in topic related extratextual talk in response to mothers' elicitations has greater potential to impact retellings (comprehension) than children's spontaneous initiatory utterances. An obvious limitation when considering results were the use of a book in which the children and parents were already familiar and a single reading experience. An unfamiliar book or books of different genres might have yielded different results. Kang et al.'s (2009) study supports interactive questioning and its positive effects on narrative retellings. These findings support the current investigation into interactive questioning techniques (e.g. dialogic reading and classroom read alouds) that could potentially be used by parents to scaffolded story understanding during shared reading.

Dialogic reading. The dialogic reading technique provides parents with a structured approach to interactive questioning with young children. Whitehurst et al.'s seminal work (1988) became the forerunner of a body of literature (Arnold et al., 1994; Hargrave & Sénéchal, 2000; Mol, Bus, De Jong, & Smeets, 2008; Swanson et al., 2011; Whitehurst et al., 1988) that has established dialogic reading as an effective strategy to

increase expressive and receptive vocabulary, phonological awareness, print concepts, and reading comprehension across socioeconomic levels. Research studies in dialogic reading also reveal that parents can be successfully trained to incorporate interactive reading skills in their shared reading experiences (Arnold et al., 1994; Whitehurst, et al., 1988). In this technique, parents are instructed to scaffold language and emergent literacy skills by using prompts that correlate with two acronyms: (1) PEER (prompt, evaluate, expand, and repeat) and (2) CROWD (completion, recall, open-ended, wh-questions, and distancing questions). The use of distancing prompts (eliciting a connection between story and events in a real world context) enables the complexity of questioning about story events to increase as the child matures (Zevenbergen, Whitehurst, Zevenbergen, 2003). As a result of using these prompts, a shift in roles occurs so that the child becomes the storyteller and the parent the listener (Whitehurst et al., 1988).

Results from Whitehurst et al.'s seminal study (1988) provided initial verification that the use of dialogic reading strategies could exceed results in language development beyond typical shared book reading. Changes in parental shared reading behaviors were credited to the training received. Whitehurst et al.'s original study compared parents who were taught the dialogic reading method to parents who shared books in their customary manner. Children in the dialogic group scored higher in expressive language skills than their counterparts at the end of the treatment as well as nine months later.

Findings that add support to the benefits of dialogic reading in language skills and expressive vocabulary were indicated in Mol, Bus, De Jong, and Smeets' (2008) meta-analysis of 16 studies. The researchers found that gains were more prominent in preschoolers than kindergarteners. This was demonstrated by the moderate effect size in

expressive vocabulary decreasing as children got older (4-5 years old) or those who were identified as at risk for deficits in language or literacy development.

The positive influence of training is observed when parents continue to implement dialogic strategies post-intervention treatments. Huebner and Payne (2010) investigated reading styles of parents ($N = 78$) of children 2-3 years old who were given training in dialogic reading and those who did not receive treatment. Two years post-intervention revealed that trained parents had wide variations in the dialogic skills used. However, dialogic reading skills were observed more and persisted two years post-intervention when compared to parents who did not receive training which supported Whitehurst et al.'s (1998) prior results (Huebner & Payne, 2010). The positive results on standardized and norm-referenced tests in expressive and receptive vocabulary have been documented for children at-risk for low academic achievement in a variety of settings such as Head Start, daycare, and low-income households (Whitehurst et al., 1988; Whitehurst & Lonigan, 2002). Concurrent implementation of dialogic strategies in the school and home setting has shown to have more positive effects on vocabulary development than the solitary school setting alone (Hargrave & Sénéchal, 2000; Lonigan & Whitehurst, 1998). This finding solidifies the significance of parental involvement, which may provide more individualized attention or a longer duration of on-task reading when in a one-on-one situation.

Exploring dialogic reading as a means to increase the quality of children's oral narratives is in its beginning stages. A small group of studies found that the use of interactive strategies had positive benefits on the quality of oral narratives (Reese, Leyva, Sparks & Grolnick, 2010; Zevenbergen, Whitehurst, & Zevenbergen, 2003). Reese and

her colleagues (2010) randomly assigned 33 mothers ($N = 33$) and their four-year-old children to one of three conditions: (1) elaborative reminiscing, (2) dialogic reading, and (3) control group. Mothers in the elaborative reminiscing group provided detailed and complex narratives that employed open-ended probing questions and expanded children's responses. Outcomes showed that elaborative reminiscing supported comprehension and improved the quality of narratives. These results surpassed dialogic reading outcomes across ethnic populations (Reese et al., 2010). A key factor in this study was the influence that parental training had on increasing narrative quality in young children. Consequently, the researchers recommended combining training in both strategies when developing shared reading interventions.

Subsequent work by Lever and Sénéchal (2011) extended Zevenbergen et al.'s, work (2003) with fictional oral narratives and verified the expanded benefits of dialogic reading with a broader based socio-economic population and children who were slightly older (5-6 years old). Parents in the dialogic reading group received training from the *Read Together, Talk Together* video (Pearson Learning Group, 2006) which offered convenience and consistency in delivery and instruction. Post-treatment narrative gains exhibited increased quality in structure and context measures including references to emotions, character names, events, anaphoric referencing and reactions beyond developmental expectations. Although the training in this study was not delivered through video format, consistency, convenience, and time efficiency were a priority when developing the intervention protocol.

Factors relevant to future parent interventions concern the parents' level of

integrity to the dialogic strategies taught and the feasibility of their maintenance over time (Briesch, Chafouleas, Lebel, & Blom-Hoffman, 2008; Lonigan & Whitehurst, 1998). Briesch et al.'s (2008) investigation revealed that strategies were maintained independently for over six months that supported prior results regarding the efficiency of videotape training and frequency of specific question prompts (Blom-Hoffman, O'Neil-Pirozzi, Volpe, & Cutting, 2006). With a small sample size of six parent-child dyads, researchers assessed the question prompts at baseline and post-intervention. Evaluation, wh- questions (e.g. who, what, when, where, why), distancing, and completion prompts were most frequently used throughout the session while prompt, expand, repeat, recall, and open-ended strategies were observed less. Thus, continued caregiver support to assure a more expansive strategy implementation was recommended.

The dialogic reading literature reviewed revealed effective methods to involve parents or other adults in interactive questioning as a means to expand vocabulary and narrative skills. Consequently, techniques derived from dialogic reading research were incorporated in this study's parent training to advance comprehension development during shared reading.

Classroom read alouds. Stimulating comprehension through teacher read alouds is a common practice in preschool and primary grade classrooms (Kindergarten-Grade 2) (Hoffman, 2011; Miller, Blackstock, & Miller, 1994). Read alouds are attributed with increasing reading motivation, exposing children to more challenging text and story structure, enhancing emergent literacy skills, and language development (Fisher, Flood, Lapp, & Frey, 2004; Hall & Williams, 2010; McGee & Schickendanz, 2007). In many ways, the procedure and presentation of a read aloud parallel the interaction between the

parent and child when using interactive questioning practices during shared reading. Implementation of identified read aloud strategies at-home, adds the benefit of individualized attention and the freedom to discuss story events in depth without time or participation constraints.

The literature on read alouds reveals diverse methods and implementation practices to foster discussion and cognition (Scharlach, 2008; Wiseman, 2011). Fisher et al.'s (2004) observational study with 25 teachers previously identified as 'experts' in facilitating read alouds, identified seven essential criteria of effective read alouds. The researchers identified critical components of effective read alouds as (1) careful selection of developmentally appropriate text, (2) teacher preview and practice reading of the selected text, (3) communication of purpose for reading, (4) fluent reading modeled, (5) use of animation and expression, (6) discussion of text, and (7) independent reading and writing (Fisher et al., 2004). Previewing the story allots time for the teacher to intentionally identify structural components, inferences, and personal connections during story reading that may be otherwise ignored (McGee & Schickendanz, 2007; Santoro et al., 2008). Therefore, previewing the electronic book was incorporated as part of the intervention protocol of this study in order for the parent to become familiar with the varied levels of question prompts, story structure, and interactive features as well as use this strategy in future reading sessions.

While there is a paucity of empirical research, which focuses on the effects of preschool read-aloud practices on comprehension outcomes, there is evidence that suggests lack of competency in more sophisticated questioning strategies and effective use of scaffolds during preschool read alouds (Pentimonti & Justice, 2010; Scheiner and

Gorsetman, 2009). In Pentimonti and Justice's study (2010), observational results revealed that preschool teachers were more apt to use low level scaffolding supports (generalizing, predicting, and reasoning), which demand less teacher assistance, in comparison to the high level scaffolds (co-participating, eliciting, and reducing) designed for the child struggling with literacy development. In addition, teachers' perceptions of their frequency of scaffolding strategies were overrated. Lack of attention to making inferences was also evident in the results of the questions developed for story discussion by preschool teachers in Scheiner and Gorsetman's (2009) study. When 31 preschool teachers were asked to write down question prompts and points that would need further explanation (for three books), making inferences was overlooked. Inferences were nonexistent in 48% of the 95 responses. As a result, the researchers supported existing research (Fisher et al., 2004; Santoro et al., 2004) that recommended previewing books and modeling attention to inference making in order to expand children's inference making abilities. The studies discussed suggest that young children may not be receiving the support necessary to develop the higher level thinking that fosters comprehension beyond the literal level. If children are not being given opportunities to deepen cognition in preschool settings, parents, if trained, may provide the scaffolding to develop these skills at home.

The following study illustrates how inferential and higher level thinking skills can be integrated during read alouds. In an effort to expand the literal level of questioning commonly observed in read alouds, Hoffman (2011) focused on identifying strategies that stimulate higher level thinking skills (e.g., analytical thinking, interpretation, and critical thinking). In order to accomplish this objective, the researcher provided

professional development, observed, coded, and analyzed one kindergarten teacher's ongoing interactions during weekly read alouds for six months.

Based on the weekly findings (Hoffman, 2011), the following instructional supports were identified and implemented throughout the year: (1) encouraging student support to build interaction, (2) reconstruction of meaning, (3) strategic use of co-construction of meaning, and (4) shifting focus from literal to interpretive. The teacher intentionally selected stopping points to implement strategic actions, respond to children's initiations, prompt the child to analyze, make intertextual connections, and interpret symbolism within the storyline. Two changes in the classroom read aloud process were attributed to incorporating instructional supports throughout the year. First, the read aloud time lapsed from 23 to 30 minutes and discussion length during the read-aloud increased by 45%. The results may suggest that the students' increased engagement in discussion was indicative of a desire to explore text meaning in a social context. Hoffman's study validates the influence of scaffolding children's higher thinking skills with intentional supports in a social context.

Recommended read aloud practices are applicable to parents whose goal is to foster reading and comprehension skills. Previewing books and preplanning higher level questions prior to shared reading engage the child in using cognitive thinking skills during story discussions that may not be addressed in preschool (Fisher, Flood, Lapp, & Frey, 2004; Santoro et al., 2008). These practices can be adapted to print and electronic text formats. Direct instruction of strategies was suggested to ensure that the strategies are internalized into a metacognitive process that will be transferred to independent reading, (RAND Reading Study Group, 2002; Scharlach, 2008).

Measuring Comprehension Skills

The predictive link between early oral language comprehension, language skills, and future reading comprehension warrants increased attention to measurements that assess preschoolers' comprehension (Paris & Paris, 2003; van den Broek et al., 2005). This process and subsequent results may be challenged by the young child's compliancy and willingness to participate (Skarakis-Doyle & Dempsey, 2008) as well as administration time, and context of assessment (Gazella & Stockman, 2003). Skarakis-Doyle and Dempsey (2008) reviewed the strengths and limitations of six measures of story comprehension, which provide the clinician multiple perspectives and procedural alternatives to meet the needs of the young child. The six procedures are: (1) comprehension questions, (2) story retell, (3) joint-story retell, (4) expectancy violation, (5) picture walk, and (6) televised story viewing. Pairing or combining assessments is recommended to provide a broader perspective of the child's comprehension ability (Paris & Paris, 2003; Skarakis-Doyle & Dempsey, 2008).

Based on the recommendations of Skarakis-Doyle and Dempsey (2008), this research study employed multiple comprehension questions and retelling assessments to assess the effects of an interactive questioning intervention implemented during shared electronic book reading on preschool students' comprehension scores. Review of comprehension assessments in the electronic book literature revealed that researcher developed questions that addressed explicit textual information and inferences were frequently used (Korat & Shamir, 2007, 2012; Wright, Fugett, & Caputa, 2013) as well as story productions or retellings (De Jong & Bus, 2004; Korat, 2010; Labbo & Kuhn, 2000).

Oral retellings are commonly used as a diagnostic tool to measure multiple aspects of language development including comprehension in the young child (Kurhana & Prema, 2009; Paris & Paris, 2003). “Retelling reveals what a child comprehends as well as how the child comprehends” (Irwin & Mitchell, 1983, p.392). Children base their retellings on oral readings of new or familiar picture books and wordless storybooks. Typically, the child is requested to re-tell what happened in the story from the beginning (Skarakis-Doyle & Dempsey, 2008). Children’s retellings also reveal elements from the story that were remembered, inferences that were made, new vocabulary, and aspects that were regarded as important (Morrow, 1985).

Narrative retellings offer the assessor a broader perspective of the child’s understanding and thinking than conventional informal reading inventories (IRIs) (Applegate, Quinn, & Applegate, 2002). IRIs target reading levels, word analysis skills, background knowledge, interests, and comprehension strategies. In one analysis of the questions on commercial IRIs, Applegate et al. (2002) found that 91% of the questions asked required recall and lower-levels of thinking skills limiting the scope of the child’s comprehension abilities. Even though both measures require one-on-one administration, narrative retelling provides greater insight into the child’s process of integrating complex comprehension skills (e.g. sequencing, reconstructing the storyline, and remembering details). According to Fazio, Naremore, & Connell, (1996) when asked to retell a new story, the child remembers and organizes the new information into a structural framework that demonstrates the child’s current processing abilities.

Children’s retelling productions are scored on the inclusion of researcher-designated criteria such as key story elements (e.g., characters, plot, and setting), as well

as causal connections and descriptions (Klinger, 2004; Kurhana & Prema, 2009). Early studies primarily measured length and information units, which relied on memory. However, research that is more current reflects a growing trend to recognize the quality of the retelling as being the predictive factor between the quality of oral narratives and reading ability (Reese, Suggate, Long, & Schaughency, 2010). Studies supporting the predictive link utilize different criteria to assess quality. O'Neill, Pearce, and Pick (2004) added evaluations with more complex components such as skill with shifting perspectives and use of mental state words while Reese et al. (2010) included categories such as character introduction, temporal terms, causal terms, and evaluation of objects and persons. Griffin, Hemphill, Camp, and Wolf (2004) referred to the emotional or expressive elements as evaluations. When included in the children's narratives, evaluations are identified as the correlative link between narrative quality and future reading performance.

The Narrative Scoring Scheme (NSS) (Heilmann, Miller, Nockerts, & Dunaway, 2010) is a criterion referenced assessment tool that measures narrative macrostructure in children between 5-7 years of age. The following six characteristics included in the rubric serve as indicators of narrative ability: (1) introduction, (2) character development, (3) mental states, (4) referencing, (5) conflict resolution, (6) cohesion, and (7) conclusion. Scoring results designate the narrative as proficient, emerging, or minimal/immature and can reveal specific areas that need reinforcement. A more in-depth description of the Narrative Scoring Scheme is included in Chapter 3.

Electronic Books and Literacy Development

The increasing use of electronic books and technology advances have impacted the literacy environment (Ertem, 2010). In response, researchers are examining the utility of electronic books to support literacy skills and comprehension (Ertem, 2010; Moody, 2010), and parents are introducing children to technology at earlier ages (Beals & Bers, 2006). Many of these young children are experiencing literature through the multi-media format of electronic books that are read independently (Moody, 2010). As a result, the necessity for a parent to scaffold emergent literacy skills during the reading process may also be changing. Exploring the potential of parents to influence comprehension development when reading electronic books, and the identification of factors specific to electronic books that have shown to influence literacy outcomes are necessary to investigate. The information and strategies gleaned from research in which shared reading involved print text defined the parents' significance and identified methods that assisted in scaffolding children's comprehension skills. An exploration into the perceived advantages and disadvantages of engaging with electronic books provides a foundation for this section.

Even though, this study focused on preschool comprehension, the limited number of studies specific to this age level necessitated the inclusion of studies conducted with children in the primary grades (K-3). Consequently, an analytical perspective that keeps in mind the developmental differences and exposure to direct comprehension instruction between the age groups is essential.

Advantages of electronic books. One of the main advantages of electronic books is the dynamic and interactive presentation of the story (Labbo & Reinking, 2000).

Instant access to features such as word pronunciations and word meanings provide literacy support to children without adult assistance or searching other resources (De Jong & Bus, 2003; Labbo & Reinking, 2000; Miller, Blackstock, & Miller, 1994). In addition, the audio and graphic animations that are relative to story line can foster comprehension and clarify the meaning of unfamiliar vocabulary words (Pearman & Chang, 2010). For the struggling reader, interactive features may be the motivating factor that will increase reading frequency as well as self-efficacy as a reader (Larson, 2010).

The convenience of hand held digital readers expands the proposed advantages beyond computer-based e-books such as CD-ROMs (Larson, 2010). Hand held devices are able to store hundreds of electronic books giving children easy access to reading opportunities away from home or school. In addition, the increasing numbers of electronic books that are free through libraries or used in schools provide the teacher or parent with opportunities to differentiate ability levels by selecting e-books and appropriate features that will meet the enrichment or reinforcement needs of the individual reader (LeFever-Davis & Pearman, 2005; Lewin, 2000). Interactive learning games can reinforce skills or offer problems that are more challenging for the advanced reader (Larson, 2010; Lewin, 2000).

Electronic books also offer the opportunity for the child to begin developing proficiency in a digital format that can provide a foundation for digital literacy (Labbo & Reinking, 2000; Pearman & Chang, 2010). Early exposure to a digital environment may provide children the opportunity to develop the skills necessary to access features and 'hot spots' as they progress through the story in a more interactive manner than traditional page turning of print text (De Jong & Bus, 2003; Roskos et al., 2009). This

proficiency can lead to increased self-confidence and motivation when self-selecting features that function as tools to scaffold comprehension of the story (Larson, 2010). These skills can also be applied when children are introduced to expressive software programs that create personal digital stories or communications (LeFever-Davis & Pearman, 2005). E-readers, such as the Kindle, incorporate a feature that logs written reflections, questions, and notes while the story is being read. The child's communication can be reviewed and responded to later, thereby also fostering writing skills (Larson, 2010).

Disadvantages of electronic books. However, interactive features are also perceived as distractions to comprehension (De Jong & Bus, 2002; 2004; Shamir, 2009). Animations and features that entertain rather than support comprehension development are considered as incidental and disadvantageous to educational objectives (Labbo & Reinking, 2000; Pearman & Chang, 2010; Shamir & Korat 2006). The primary concern relates to the interruption that transpires when the reader chooses to suspend the story in preference to activating hot spots, games, and other interactive features that are unrelated to the story (De Jong & Bus 2003; LeFever-Davis & Pearman, 2005). When this occurs, the text may not be given sufficient attention and the reading duration may be prolonged causing fatigue and lack of focus (De Jong & Bus, 2002; Pearman & Chang, 2010).

Therefore, e-books that are considered to lack quality reduce the potential benefits when they have numerous animations and multimedia features, which do not support the storyline or are limited in features (i.e., dictionary) that support literacy (Labbo & Kuhn, 2000; De Jong & Bus, 2003; Korat and Shamir, 2004, 2008). A more in-depth review of

studies focusing on the relationship between comprehension and interactive features is discussed in the section on electronic books and comprehension development.

Electronic feature dependency and perceptions of the electronic environment are also considered potential disadvantages. Over reliance on electronic features to pronounce and read the text can compromise decoding skills when the child is introduced to unfamiliar words (LeFever-Davis & Pearman, 2005; Pearman & Chang, 2010). This dependency may cause a more passive attitude or entertainment perspective on the part of the reader (Labbo & Kuhn, 2000; LeFever-Davis & Pearman, 2005; Pearman & Chang, 2010). This perspective reduces the cognitive engagement required to foster reading skills. If parents view electronic books in the same manner, two foundational components of shared book reading are denied: (1) parent and child bonding and (2) interactive discussion throughout the story (Audet, Evans, Mitchell, Reynolds, 2008). Finally, a potential disadvantage inherent to technology is the frustration experienced by the reader with specific features. The length of time to turn pages and the inability to deactivate graphics or narration may limit readers' reading enjoyment, as story understanding is sought (LeFever-Davis & Pearman, 2005).

Quality of electronic books. Given the advantages and disadvantages of electronic books, it may be concluded that the wide range of reading experiences that e-books offer are indicative of the interactive features' capacity to scaffold literacy skills. Examining the type, function, and quality of the features in books that are commercially available to children in schools and at home is essential (Chera & Wood, 2003; Gong & Levy, 2009; Lewin, 2000; Littleton, Wood, & Chera, 2006). A key component when evaluating the efficacy of electronic books on literacy development is the level of

interactive legibility (De Jong & Bus, 2003). Interactive legibility refers to "...facilities that focus children's attention on the relationship between oral and written text" (De Jong & Bus, 2003, p.149). For example, clicking on a word or phrase may produce a visual representation or narration. When combined with the digital text, interactive features can potentially serve as electronic scaffolds that stimulate cognitive meaning-making pathways and internalize the text (Bus, De Jong, & Verhallen, 2006; Moody, 2010).

The unique format of electronic books increases the existing variables that can potentially affect emergent literacy skills acquisition. Substantial differences in quality exist between commercially and researcher developed electronic books (De Jong & Bus, 2003; Korat & Shamir, 2004). The terms "considerate" and "inconsiderate" are derived from the level of literacy support the e-book offers. Inconsiderate e-books hinder comprehension through features that are incongruent with the story structure while features in considerate e-books align with the story and support the meaning making process (Labbo & Kuhn, 2000).

Findings from two studies that analyzed the quality of commercial e-books to support emergent literacy development revealed unsatisfactory results regarding literacy support (De Jong & Bus, 2003; Korat & Shamir, 2004). Book processing, interactive legibility, multi-media in pictures or words, and interactivity of the story were evaluated. Shamir and Korat's (2006) checklist, *Criteria for Evaluating CD-ROM Storybooks for Young Children*, assists teachers in determining the quality level of an e-book. Books selected for this study were evaluated using this checklist. Researchers responded to e-books that did not support emergent literacy by designing e-books that incorporated features that were regarded as considerate to skill development (Chera & Wood, 2003;

Gong & Levy, 2009; Korat & Shamir, 2007, 2008; Shamir, 2009; Shamir & Korat, 2007; Smeets & Bus, 2012).

Specific features and emergent literacy outcomes. Positive results regarding emergent literacy outcomes when using the e-book independently suggest that electronic features can act as scaffolds to influence children's development of specific literacy skills. A range of studies that represent normally developing children, those at risk for disabilities, second language learners, and different SES populations represent the influence of specific features on preschool and kindergarten students' literacy skills (Chera & Wood, 2003; Gong & Levy, 2009; Korat & Shamir, 2007; 2008; 2012; Littleton et al., 2006; Shamir, 2009; Shamir, Korat, and Shlafer, 2011; Smeets & Bus, 2012). Positive literacy outcomes in phonological awareness have been attributed to segmented speech feedback (Chera & Wood, 2003; Shamir & Shlafer, 2011; Littleton et al., 2006). The highlighting features have shown to influence gains in concepts about print and letter reading (Gong & Levy, 2009).

The inclusion of the dictionary feature is regarded as significant to electronic book quality (Korat & Shamir, 2006). Utilization of this feature is credited with strengthening children's skills in word meaning and word reading (Korat & Shamir, 2007; 2008; 2012; Shamir, 2009, Smeets & Bus, 2012). Positive gains are notable in lieu of the research reviewed on the importance of shared book reading and direct instruction to maximize vocabulary acquisition (Blewitt et al., 2009; Marulis & Neuman, 2010).

Electronic books and comprehension development. Comprehension development is a continual process and vital to future reading success (National Early Literacy Panel, 2008). Since emergent comprehension develops from birth and prior to

conventional reading (Dooley & Matthews, 2009) and electronic books are being read by young children (Rideout, 2013), the potential exists for electronic books to play an important role in comprehension development. The story presentation in an electronic interactive format aligns with the dual coding theory, which proposes, that increased processing and memory of text occurs when conditions promote connections between verbal/linguistic and nonverbal/nonlinguistic sensory information (Sadoski & Paivio, 2007). Thus, the link between the animated images and verbal representations (narrations) increase the likelihood that story propositions are recalled when prompted verbally. Based on this premise, it would seem that electronic books offer optimal conditions for comprehension development to occur. However, the literature base reflects inconsistent results associated with comprehension development from prekindergarten through 5th grade as presented in the following two studies. The remainder of this section focuses on studies that investigate electronic books' utility concerning comprehension development independently and with adult support in prekindergarten through first grade students.

Zucker, Moody, and McKenna's meta-analysis (2009) of seven randomized-trial and 20 quasi- experimental/observational studies examined the effects of electronic books on preK-5 students' literacy and language outcomes focusing on comprehension and decoding. The researchers noted that available quality research that met their criteria was limited. The results of the seven randomized-trial studies found small to medium effect sizes in comprehension suggesting that electronic books are viable resources to support comprehension in younger typically developing readers. However, based on findings, the researchers noted that interactive features not congruent with the story structure might

impede comprehension. Interpretation of results was cautioned due to the sampling bias, a greater number of studies targeting young children, and inadequate representation of students with learning disabilities (Zucker et al., 2009).

Ertem (2010) reviewed 20 studies with the purpose of identifying the advantages and disadvantages of interactive CD-ROM storybooks in relation to the mixed results previously established in the literature regarding comprehension outcomes. For the most part, his review consisted of different studies than Zucker, Moody, and McKenna's (2009) analysis and confirmed the prior results, which considered interactive features as either beneficial or detrimental to comprehension. Oral retellings and comprehension questions were used most frequently as assessments for the primary age students (K-3rd grade), while multiple choice questions measured older students' (4th-5th) comprehension. In Ertem's review, of the seven studies that obtained positive results for comprehension, only one study assessed kindergarten age children while the rest of the studies investigated participants between second and fifth grades who were already engaged in formal reading instruction. The limited results from these two reviews appear promising to emergent literacy skills in general, yet close inspection of individual studies provide a more in-depth perspective of the influence e-books are having on comprehension development.

Factors that influence comprehension. Studies measuring the comprehension of prekindergarten and kindergarten students vary in the focus on different factors that might influence outcomes. Examination of the impact of hotspots and interactive features on children's attention to the story structure and comprehension yielded mixed results in the preschool to kindergarten age range. Labbo and Kuhn's (2000) in-depth

case study described one kindergarten boy's responses when reading considerate and inconsiderate e-books. The researchers' observed increased evidence of higher-level thinking, metacognition, and cognition when viewing the features that aligned with the story. In contrast, while reading an inconsiderate story, his behaviors were more passive and disconnected from the story content. Digital retellings clearly illustrated the difference between his experiences of the two books. Digital drawings and a dictated retelling based on the considerate book demonstrated story cohesion and inclusion of setting, characters, and events. In comparison, with the inconsiderate e-book, his story was fragmented and included references to incongruent story animations, as well as, characters not present in the story. These observations imply that the features compromised his understanding of the story. Results of this study suggest that features may function as electronic scaffolds to support increased comprehension or be detrimental to meaning making (Labbo & Kuhn, 2000).

De Jong and Bus' seminal work (2002) supports Labbo and Kuhn's (2000) findings. The researcher's initial experimental study (2002) observed 4-6 year old kindergarten students in four conditions (control = 12, e-book restricted = 12, e-book unrestricted = 12, print text = 12) with varying emergent literacy levels. Overall explorations of the e-book were coded with attention to access of games, hotspots, and text read in an effort to determine how book format affects story internalization. Results revealed stronger outcomes for the students reading print text with an adult in comparison to the e-book readers (with restricted and unrestricted game access). Due to frequent access to hot spots and games, students in the e-book condition outcomes demonstrated

less attention to the text, decreased amount of times the story was read, and achieved lower scores in story internalization.

However, De Jong and Bus' later study (2004) offered a contrasting perspective to the inquiry regarding the impact of hotspots and electronic features on comprehension. The researchers' investigation employed print text and electronic text to measure comprehension skills in kindergarteners ($N = 18$). Retelling abilities and comprehension scores of the participants who read the electronic story independently were comparable to the groups in the adult supported sessions. Results demonstrated that comprehension scores were not negatively affected by the quantity of hot spots accessed.

Further results support the positive influence of e-books on comprehension. Outcomes were found across K-1 age levels in story productions and answering yes/no story questions (Korat, 2010). When comparing groups of kindergarteners and first graders to students who received regular classroom instruction (control group), Korat (2010) found that both kindergarten and first grade students who read e-books demonstrated significant growth in word meaning and word reading. Both intervention groups exhibited a proficient level of comprehension (yes/no questions) while story production for kindergarten students was lower than the first graders and attributed to reading levels. The positive outcomes gained affirmed the capacity of electronic books to affect vocabulary and comprehension.

Researcher developed e-books with specialized features, such as the one Korat and Shamir (2012) developed to increase vocabulary support, demonstrates the potential impact of features that align with literacy skills. Korat and Shamir's work (2012) concentrated on the relationship between word support in the story narration, the

dictionary feature, and comprehension in pre-kindergarten ($N = 144$) and kindergarten students ($N = 144$). Students were randomly designated to three groups: read the story only, read the story and play, and read the story with the dictionary. Students in the experimental groups worked with a partner and read the story five times prior to assessment. Data analysis indicated that children in the e-book conditions demonstrated more progress than children in the control group. Significant positive correlations were identified between vocabulary attainment of words and comprehension scores. The findings of this study demonstrated the capability of a dictionary feature to provide direct instruction and scaffold unfamiliar words through pictures and verbal explanations. In addition, it also shows that positive gains are achievable in shared partner conditions.

An innovative strategy in technology offered an alternative to vocabulary development beyond dictionary access in Smeets and Bus' study (2012) with 4-5 year old children. Four conditions were comprised of a control group, a static e-book group, an animated e-book group (dictionary access), and an interactive animated e-book group which responded to embedded questions and definitions for unfamiliar target words on the page. Significant progress for acquiring target vocabulary words was found for children in the interactive animated e-book. Results for responses to comprehension questions and retellings did not indicate particular group effects on outcomes. However, Smeets and Bus' study (2012) does add credibility to the literature that demonstrates the potential of electronic books to parallel adult scaffolding of comprehension skills.

Influence of adult involvement during shared electronic book reading. The interactive discussion that transpires between the adult and child during traditional shared book reading is a significant factor affecting literacy development (Whitehurst et al.,

1988). However, the research base reflects a lack of empirical studies that identifies parent-child strategies to electronic books shared book reading. Introductory studies in the overall area of emergent literacy in this area indicate that adult support may provide additional benefits to literacy skill development beyond the engagement of interactive features in e-books (Korat et al., 2009; Segal-Drori et al., 2010). For example, kindergarten students demonstrated improvements in phonological awareness and word reading that exceeded results from all other conditions when they were provided adult support during shared e-book reading (Korat et al., 2009).

This outcome was supported by Segal-Drori et al.'s (2010) study that compared four treatment conditions including two that received adult support in text and e-book format. Children who had adult support during e-book reading made greater gains in concepts about print and word reading than other treatment groups. These preliminary studies suggest that parental support during the e-book reading process is beneficial to literacy outcomes and is worthy of future investigation to determine optimal conditions for comprehension development.

Work in this area is beginning to surface. Korat, Shamir, and Heibel's (2013) preliminary study investigated the influence of training parents to incorporate reading strategies during printed text and electronic book shared reading sessions with prekindergarten children ($N = 90$). The researchers contended that mothers would demonstrate increased attention to interactive features when reading with an e-book that was equipped with multimedia features and literacy supports (e.g., dictionary and word segmentation). When comparing the results of the groups, that read printed either text or e-book conditions to the control group, both intervention groups achieved significant

progress in phonological awareness and word comprehension. Similar results may be attributed to the identical training that was received by all mothers in the intervention groups. In an effort to better understand the potential of electronic books on language and literacy acquisition when used in a social context, the researchers advocate for increased research in shared electronic book reading with parents (Korat et al., 2013).

Upon review of the literature base, it is apparent that electronic books have been investigated as an independent resource with the potential capability of scaffolding young children's literacy skills. While animations and features have shown to compromise recall of story line of older children (8-11 years of age), such as those in three studies conducted by Trushell and his colleagues (Trushell & Maitland, 2005; Trushell et al., 2001; Trushell, et al., 2003), their effects on preschoolers may be different when considerate e-books are carefully chosen. The results of Smeets and Bus' study (2012) in which embedded prompts supported vocabulary development, raises a query regarding the effects of parents providing similar types of support. Thus, exploring if the combination of embedded technical features and parental support can produce a synergistic effect in promoting preschoolers' comprehension is relevant.

Chapter Summary

In reviewing the available studies on methods to foster comprehension skills in preschoolers, it is evident that parental interactive questioning skills are a recommended practice. Vygotsky's socio-cognitive theory provides the framework in which cognition occurs within an interactive process (Vygotsky, 1978) that scaffolds existing skills through the zone of proximal development to new levels of mastery. Dialogic and read-aloud studies conducted with regular text advocated for a systematic approach to parental

training and the use of question prompts to elicit inference making and higher-level thinking. However, due to the inconsistencies found in the area of comprehension and electronic books, the need for further empirical research was validated in order to examine the aforementioned practices with and without parental scaffolding. Oral retellings and comprehension questions (literal and inferential) were presented as appropriate comprehension measurements for young children who were not reading independently.

The literature reviewed also reflected a lack of studies that used single subject design. Single subject design is an effective methodological choice to reveal the functional relationship between the dependent and independent variables (O'Neill et al., 2011). An advantage of single subject research design is the manageability and effectiveness of implementation in versatile situations and settings. Single subject design is discussed as the methodological choice in Chapter 3.

CHAPTER 3

METHODOLOGY

Chapter Overview and Research Questions

The purpose of this study was to investigate the effectiveness of a parental intervention, which uses questioning strategies to increase comprehension during shared electronic book reading with preschoolers. This chapter provides a rationale for using single case research design (SCRD) and descriptions of the study's setting, participants, measurement instruments, procedures, data collection and analysis. The manner in which internal and external validity, fidelity to the intervention, and reliability are addressed concludes this chapter.

This study was situated in the socio-cultural theory (Vygotsky, 1978) which maintains that cognition occurs within a social context by which knowledge is co-constructed through the interactions of the participants, and can be enhanced by a more knowledgeable participant who utilizes scaffolding skills at the child's level (ZPD) (Vygotsky, 1978). It also considered the significance of a technological tool (electronic book) to potentially mediate the experience and learning process for the child independently or with adult support (Vygotsky, 1978). In this study, the adult scaffolded the child's comprehension skills using questioning strategies to make connections, identify inferences, define words, and retell story events. In this manner, the effects of parental scaffolding during electronic book reading and comprehension were investigated.

The questions proposed for this research study were as follows:

1. In what way does an adult interactive questioning intervention during shared reading of electronic books impact preschool students' comprehension scores?
2. What are the effects, if any, of training parents to implement questioning strategies during shared electronic book reading on subsequent parental behaviors during future shared electronic book reading?

Participants and Inclusion Criteria

A convenience sample of four parent-child dyads volunteered for this study. This sample met the recommended size of between 3-5 participants in studies using single case research design (O'Neill, McDonnell, Billingsley, & Jenson, 2011). The participants were recruited (see Appendix A) from a licensed suburban private Christian preschool that serves children ranging from 2-6 years old and provides before and after school care for local elementary school students. The school had received a four star rating from the Virginia Star Quality Initiative and was in the Self-Study phase of accreditation from the National Association for the Education of Young Children. The preschool offers programs for children between the ages of two and four, full day kindergarten, and after school care for 25 elementary school-aged students through 5th grade. The ethnicity distribution of the preschool program for the 2013-2014 school year was as follows: Caucasian = 97 students, African American = 9 students, Phillipino = 1 student, East Indian = 1 student. Participant criteria for inclusion and participation in the study are described in Table 1.

Table 1.

Criteria for Participant Inclusion in Study

Participant Characteristics	Parent	Child Participant
Age	At least 18 years of age	48-71 months
Sex	Female or male	Female or male
Ethnicity	No requirement	No requirement
Hearing	No significant deficits	No significant deficits
Vision	No significant deficits with corrective lenses if needed	No significant deficits with corrective lenses if needed
Education level	No specific requirement	No prior enrollment in kindergarten.
Technology access	Skills in accessing the internet Home computer or digital reader access	None
Informed consent	Signed informed consent obtained	Verbal agreement to participate

Child participants. The four child participants were comprised of three boys and one girl ranging in age from 49 to 68 months. None of the child participants was diagnosed with developmental delays, physical handicaps, vision or hearing impairments, or cognitive delays. Participants were randomly assigned a number to protect their identities. Child participants' demographic information is presented in Table 2.

Table 2.

Child Participant Demographic Information

Child	Sex	Age (Months)	Ethnicity
1	F	57	White/Caucasian
2	M	49	White/Caucasian
3	M	49	White/Caucasian
4	M	68	White Caucasian
<i>M</i>		55.75	
Range		49 - 68	

Parent participants. The four parent participants consisted of the child participants' biological mothers. Their ages ranged from 27-33 years old at the onset of the study. None of the parents had any vision, physical, or technological challenges that compromised their ability to participate in shared electronic book reading with their child. All parent participants signed an informed consent form and completed The Parent Information form (see Appendix B), which addressed demographic data and shared reading practices. Prior to this study, none of the parents' interactive shared reading behaviors had been assessed using an observational tool. Parent participants were assigned numbers that corresponded to their child's number. Parent participants' demographic information is presented in Table 3.

Table 3.

Parent Participant Demographic Information

Parent	Sex	Age (Years)	Ethnicity	Educational Level
1	F	30	White/Caucasian	High School
2	F	31	White/Caucasian	High School
3	F	33	White/Caucasian	B.S. Degree
4	F	27	White Caucasian	AAS Degree
<i>M</i>		30.25		
Range		27-33 years		

Protection of participants. Parents participating in the study were required to sign an informed consent form. This form outlined the purpose of the study, procedures, duration, experimental procedures, potential risks and benefits, collection of data, confidentiality of records, researcher's contact information, and the right to terminate participation without consequence (O'Neill et al., 2011; Roberts, 2010). Transcriptions and data results were stored electronically on a flash drive and on a password locked laptop. Videotapes, audio recordings, assessment documents, and the flash drive were secured in a locked file cabinet in the researcher's personal office. Children and parents were assigned a number to preserve confidentiality. All videotapes, comprehension assessments, and standardized assessments were reviewed, scored, and analyzed in a setting located away from the preschool center.

Study Design

The single case research design selected for this study is a respected systematic method to investigate functional relationships between independent and dependent variables (O'Neil et al., 2011). This design entails multiple, systematic observations,

measurements of overt behaviors, operational definitions for outcome behaviors, replication of intervention effects, and validation of social validity to answer experimental questions. Single case research (SCR) design utilizes multiple opportunities to conduct systematic replications over time to determine experimental effects from baseline to intervention. SCR also lends itself to varied situations in school and community settings (O'Neil et al., 2011). The size and convenience of the sample coupled with the ability to investigate the effects of a behavioral intervention on each participant's comprehension outcomes supported SCR design as an optimal choice for this empirical investigation.

In this study, the dependent variable was comprehension outcomes and the independent variable was the practice of incorporating questioning strategies by parents during shared electronic book reading. The dependent variable or comprehension outcomes was derived from two data sources and operationally defined as: (1) the correct responses to researcher developed questions for each e-book story and (2) the quality of the narrative retellings measured by the Narrative Scoring Scheme (Heilmann, Miller, Nockerts, & Dunaway, 2010). Varied questions elicited responses that demonstrated understanding of story grammar, cause and effect, vocabulary, and inferential connections. Assessment criteria are discussed in the section on measurement.

Measurements

Table 4 presents the research questions and the assessment tools that were selected to measure the collected data. Data collection and analysis are discussed in subsequent sections.

Table 4.

Research Questions and Associated Measures

Research Questions	Measures
1. In what ways does an interactive questioning intervention during shared electronic book reading impact preschoolers' comprehension scores?	ELSA Eight researcher developed comprehension questions Narrative story retellings: Narrative Scoring Scheme (NSS)
2. What are the effects, if any, of training parents to implement questioning strategies during shared electronic book reading on subsequent parental behaviors during shared electronic book reading?	Adult/Child Interactive Reading Inventory (ACIRI) Parent Satisfaction Survey

Adult/Child Interactive Reading Inventory (ACIRI). The Adult/Child Interactive Reading Inventory (DeBruin-Parecki, 2007) is a qualitative and quantitative observational tool that is designed to measure 12 effective research based reading behaviors that can potentially occur during shared reading between an adult and child. These behaviors are categorized as enhancing attention to text, promoting interactive reading and supporting comprehension, and using literacy strategies. Means are obtained for each of the categories as well as the total score. The observer tallies behaviors and writes comments on the scoring form during the observation of both the parent and child. By using the ACIRI's pre-intervention and post-intervention scores, parents' growth over time was established as a result of an intervention designed to educate the parents and increase the frequency of targeted strategies.

Statistical support for the ACIRI was obtained through a pilot study conducted with 75 mothers and their children who were enrolled in an Even Start program serving five cities and two townships in the Midwest of the United States. The population of the

area was approximately 45,000 people. The mother-child dyads were primarily Caucasian (74.4%), African American (13.3%), Hispanic (6.1%), Native American (2.6%), and mixed ethnic heritage (3.6%) comprised the remainder of the population. The age range of adults spanned from 19 to 49 years old with the majority (37%) in the 23-29 year old bracket. The children's genders were equally represented and ranged in age from 2-7 years old with the majority of the children's ages between 3 and 4 years old (51%). In the current study, all participants were Caucasian, the age range was slightly older (4-6 years old), but fell within the pilot study's age range, and the genders were unequally represented (three males and one female).

Reliability ($\alpha = .80$), inter-rater reliability (97.5), and construct validity in support of correlation with research-based reading behaviors have been established for the ACIRI (DeBruin-Parecki, 2007). For the purpose of this study, the ACIRI observed parental interactive behaviors prior to the intervention and one-week post-intervention to determine if the behavioral practices taught in the intervention were implemented without the scaffolding scripts used during the intervention phase. The researcher and one research team member who had prior training conducting and scoring the ACIRI videotaped and analyzed the two sessions.

Early Literacy Skills Assessment (ELSA). The Early Literacy Skills Assessment (DeBruin-Parecki, 2005) is an authentic assessment, which measures the fundamental literacy skills of comprehension, phonological awareness, alphabetic principle, and concepts about print in 3-5 year olds in English or Spanish (De-Bruin, 2005). The assessment is conducted using one of two storybooks (*Violet's Adventure* and *Dante Grows Up*) that have 23 questions and prompts embedded within the story.

Violet's Adventure (DeBruin-Parecki, 2005) was used in this study. The comprehension content area is comprised of eight questions that ask the child to predict, retell, and make connections to real life.

The composite scores and subtest scores for comprehension were obtained from the pre- and post-assessments using *Violet's Adventure*. Total raw scores in each content area were converted to one of the three developmental levels. Descriptions of the three levels pertaining to comprehension are as follows (Debruin-Parecki, 2005, p.12-13):

Level 1: Early Emergent

Your child knows more words than she uses when she talks. When you read books with her, she thinks about the words and/or pictures on the page you are reading. She can use the pictures to tell about the story and link the story to her own life.

Level 2: Emergent

Your child often tries to say new words. When he reads a story, he thinks about all the parts he has read and then guesses what will happen later. He can link the story to his own life.

Level 3: Competent Emergent

Your child hears and looks at new words and is able to link them with things in her life. She is starting to think about the parts of a story (like the beginning, middle, and end), she can guess what will happen next, and she can tell the parts of a story in the correct order.

The validity and reliability of the ELSA was established in a pilot study conducted in Florida, Maine, and Michigan (DeBruin-Parecki, 2005). Six hundred thirty

students ($M = 4.0$ years old) from 31 classes participated. The ethnic groups represented were Caucasian (65%), African American (26%), Hispanic/Latino (2%), and other groups (7%). Significant differences in average age, preschool experience, and special needs were found in participants from the Florida sites. These children were older, had more preschool experience, and over 40% had been identified as having special needs.

Concurrent validity was found (0.67) for three content areas (phonological awareness, alphabetic principle, and concepts about print) using Whitehurst and Lonigan's (2001) screening tool, *Get Ready to Read!* However, concurrent validity for comprehension could not be established due to lack of comparative instruments measuring comprehension at this age level. Construct validity was confirmed as a result of the ELSA being based on four main principles delineated in the literacy literature that predict reading achievement (comprehension, phonological awareness, alphabetic tool, and concepts about print). Confirmation of developmental validity was also ascertained, which demonstrated that the performance items were developmentally appropriate for the age of the child being measured. The alpha coefficients calculated to establish comprehensive reliability for ELSA were .82 pre-test and .88 post-test. These high alpha coefficients attest to the measurement's reliability as a measure of early literacy skill development.

Researcher developed comprehension questions. Soliciting responses to comprehension questions are a customary practice in measuring story comprehension and have shown to be a valid and reliable assessment of preschool comprehension (Skarakis-Doyle & Dempsey, 2008). The literature base was sourced to determine the types of questions that would elicit information regarding a child's story comprehension.

Incorporating both literal and inferential questions was a common practice (Doty, Popplewell, & Byers, 2001; Shamir, 2009; Shamir, Korat, & Barbi, 2008). Therefore, eight researcher-developed questions measured comprehension skills in this study. Four questions elicited literal answers, three questions required inferential thinking, and one was devoted to word understanding.

The varied question prompts targeted story grammar such as setting and characters, word meaning, the main character's primary goal or challenge, and cause and effect. Findings demonstrate that causal connections are positively related to narrative coherence (Kendou et al, 2005; van den Broek, 1994) and the comprehension of connections between central events (van den Broek, Kendeou, Lousberg, & Visser, 2011). Inferential questions prompted the child to explain why, think critically, or make causal connections. The types and sequence of questions varied from story to story to insure alignment with the story structure. The Comprehension and Scoring Form for each electronic book (see Appendix C) contained the question protocol, eight comprehension questions, and a space for the participants' responses. Each correct response received one point. One question was open-ended and elicited multiple responses. The child was able to earn up to three points for each answer that was a logical connection to the question and story. Additional responses were prompted by asking, "Can you tell me more?" Two reading specialists reviewed the stories and the researcher developed questions. They determined that the comprehension question assessment was developmentally appropriate.

Narrative retellings. Story retelling is an effective assessment to measure young children's story comprehension. Through the retelling process, children are able to

express themselves creatively in a naturalistic setting, include story details, and provide insight into personal connections that may not be gleaned solely through comprehension questions (Nicholson, McLaurin, & Triplett, 2012; Riley & Burrell, 2007). In order to formulate a quality retelling, the child uses comprehension skills to draw upon mental models of the text to describe details, sequence events, and justify causal events (Zwann & Graesser, 1998). Retellings were elicited for this study using the Elicitation Protocol for Narrative Retelling provided by Systematic Analysis of Language Transcripts (SALT; 2014) software program (see Appendix D). The researcher recorded and transcribed the story retellings. In order to eliminate the effects of memory as a confounding variable in story production, children were able to use the e-book during retelling (Florit, Roch, Altoè, & Levorato, 2009).

The Narrative Scoring Scheme (NSS; Heilmann et al., 2010) is a criterion referenced assessment tool that measures narrative macrostructure in children between 5-7 years of age (see Appendix E). Macrostructure refers to story grammar, which encompasses the setting, or background in which characters respond to episodic conditions (Heilmann et al. 2010 a). Episodes are distinguished by three elements common to all narrative stories: “(a) a problem (initiating event and/or internal response), (b) attempts at solving the problem, and (c) consequences/outcomes,” (Heilmann, Miller, Nockerts, & Dunaway, 2010, p. 155).

The NSS integrates and expands on the traditional narrative scoring schemes found in the retelling literature (Heilmann et al., 2010; Heilmann, Miller, Nockerts, & Dunaway, 2010). Alternative approaches rely on tallying and totaling story grammar elements, or subjective judgments of the narrative’s quality by the assessor. The NSS

provides a scoring scheme that assesses the following seven narrative characteristics: (1) introduction, (2) character development, (3) mental states, (4) referencing (5) conflict resolution, (6) cohesion, and (7) conclusion. Addressing higher-level abstract language features such as, metacognitive and metalinguistic verbs, referencing, and story cohesion set the NSS apart from three comparative retelling assessments. Due to these inclusions, the NSS was found to be a more sensitive measure to utilize when scaffolding is involved in the retelling procedure (Heilmann et al., 2010).

Story retellings are scored using NSS's scaled rubric descriptions that delineate proficient, emerging, or minimal/immature classifications. The scores for each category are totaled forming a composite score (Heilmann et al., 2010). A rubric is provided for each classification and correlates to point values of 1, 3, and 5. Awarding scores of 2 and 4 points are based on the scorer's judgment and were not used in this study to limit subjectivity issues.

In Heilmann et al.'s (2010) evaluation of the NSS, results demonstrated the highest levels (99%) of implementation and examiner fidelity during the elicitation procedure. In an additional study (Heilmann, Miller, & Nockerts, 2010), narrative retelling performances of typically developing 5-7 year old children ($N=120$) were measured and compared using four measurements: Narrative Scoring Scheme (Heilmann et al., 2010), Plot and Theme (Reilly, Losh, Bellugi, & Wulfeck, 2004), Ordinal Adaptation of Applebee's Narrative Maturity Scale (adapted from Manhardt & Rescorla, 2002 and Hughes, McGillivray, & Schmidek, 1997), and Ordinal Adaptation of Stein's Story Levels (adapted from Pearce, McCormack, & James, 2003 and Hughes et al., 1997). Results demonstrated that the NSS had a relatively normal distribution in

comparison to the other three measures. The Krippendorff alpha coefficient for plot and theme measures were $\alpha = 0.79$ with results for inter-rater agreement being lower when analyzed by Applebee and Stein (plot: $\alpha = 0.61$ and theme: $\alpha = 0.69$). Advantages found for the use of NSS include the incorporation of literate language, cohesion, and the identification of narrative skills that can be scaffolded in the future (Heilmann et al., 2010). The administration and scoring scheme is efficient, designed for accuracy between examiners, and identifies areas that may need mediation (Heilmann, Miller, Nockerts, 2010).

Setting and Materials

Setting. The study was conducted at the preschool center in a small-secluded room that housed the preschool's library books. Within this small area, a child's table served as the location for both reading and assessing the child after the shared reading session culminated. A bench in the foyer of the preschool center served as the waiting area for the researcher and parent while reading sessions and comprehension assessments were conducted.

Materials. The commercial electronic books employed in this study provided a current perspective of the types of e-books that parents and children purchase in contrast to researcher developed e-books (Chera & Wood, 2003; Gong & Levy, 2009; Korat, 2010; Korat & Shamir, 2007, 2008; Shamir, 2009; Smeets & Bus, 2012). The commercial electronic books for this study were selected from Scholastic's Enriched Storia® electronic book collection from the leveled category targeting preschool and kindergarten children. Scholastic is the world's largest children's publisher and a principal player in educational technology and children's media (Robinson, 2014). The

preschool's limited e-book collection did not include the books employed in this study.

The electronic books selected for this study are presented in Table 5.

Table 5.

Selected Storia® Enriched Electronic Books

Title	Author	Grade Range
Training		
<i>Clifford Goes to Dog School</i>	Bridwell	Pre-K-1
Pre- and Post-intervention (ACIRI)		
<i>Super Fly Guy</i>	Arnold	Pre-K-1
<i>Buzz Boy and Fly Guy</i>	Arnold	Pre-K-1
Baseline		
<i>Clifford's Family</i>	Bridwell	Pre-K-1
<i>Fly Guy Meets Fly Girl</i>	Arnold	Pre-K-1
<i>Clifford Takes a Trip</i>	Bridwell	Pre-K-1
<i>There was an Old Lady Who Swallowed Fly Guy</i>	Arnold	Pre-K
Intervention		
<i>Clifford's Good Deeds</i>	Bridwell	Pre-K-1
<i>I SPY Fly Guy</i>	Arnold	Pre-K-1
<i>Clifford's Birthday Party</i>	Bridwell	Pre-K-1
<i>Fly Guy vs. the Flyswatter!</i>	Arnold	Pre-K-1
<i>Clifford at the Circus</i>	Bridwell	Pre-K-1
<i>Ride, Fly Guy, Ride!</i>	Arnold	Pre-K-1

The books selected for this are part of the Clifford collection by Norman Bridwell and the Fly Guy series by Tedd Arnold. These books are highly popular and recommended by Scholastic for the age group in this study. Selection of the 13 Storia® narrative books was based on recommended age level, number of pages, cost, and similar interactive features. Shamir and Korat's (2006) Criteria for Evaluating CD-ROM

Storybooks for Young Children was employed to assess the quality of the books selected for this study (see Appendix F). Their criteria was based on De Jong and Bus (2003) and Haughland and Wright's (1997) prior work and their own research in order to provide teachers with a questionnaire that efficiently determined the quality of electronic books.

The questionnaire's criterion includes eighteen yes or no questions that are categorized into six components: age appropriate, child control, clear instructions, independence, process orientation, and technical features. Each yes answer is awarded 1 point except in the instance of the six questions that are denoted by an asterisk as 'supportive' and worth 2 points. Negative answers receive a score of zero. The highest score obtainable is 32 points. E-books that receive scores of 24 points or above reflect the book's high quality and capacity to entertain, motivate, and support literacy development (Shamir & Korat, 2006).

Two books from each series were randomly selected and scored independently by the researcher and a research team member. Results reflected the similarities in Scholastic's electronic book platform for both book series. All of the books assessed consistently obtained scores of 23 points from both evaluators. Inter-rater reliability was calculated at 100%. The Fly Guy books received an extra point for an appropriate size font that the Clifford books did not receive. However, two of the three Clifford books used in this study include an animated story following the conclusion of the story. Findings for both series indicated a lack of options in the Child Control category. For instance, a dictionary option and a play only mode are considered important features and worth 2 points. Illustrations were not animated; therefore, there was not an option to activate illustrations or hot spots. In addition, the print option was not included and the

font size in the Clifford books was small for young children. The interactive prompts accessed do provide opportunities to increase word knowledge and comprehension. Table 6 presents the evaluation results for the four randomly selected electronic books using Shamir and Korat's (2006) criteria. The researcher is designated as evaluator 1 (E1) and the research team member as evaluator 2 (E2).

Table 6.

Evaluation Results for Selected Electronic Books

Electronic Book	Age Appropriate		Child Control		Clear Instructions		Independence		Process Orientation		Technical Features		Totals	
	6 Points		11 Points		5 Points		1 Point		4 Points		5 Points		E1	E2
	E1	E2	E1	E2	E1	E2	E1	E2	E1	E2	E1	E2	E1	E2
<i>Clifford's Birthday Party</i>	5	5	4	4	5	5	1	1	4	4	4	4	23	23
<i>Clifford at the Circus</i>	5	5	4	4	5	5	1	1	4	4	4	4	23	23
<i>Fly Guy Meets Fly Girl</i>	6	6	4	4	5	5	1	1	4	4	3	3	23	23
<i>Ride, Fly Guy, Ride</i>	6	6	4	4	5	5	1	1	4	4	3	3	23	23

Note: Shamir and Korat's criteria (Shamir & Korat, 2006) were used to evaluate randomly selected electronic books.

Both series offered features that drew the child's attention to the story structure and promoted comprehension. However, the question prompts and interactive learning activities accessed through the lightning bolt often detoured from the event occurring on the access page. The prompts varied and elicited responses through multiple-choice

questions with pictures or text, jigsaw puzzles, picture starters, questions answered by touching the graphic, word searches, and selecting letters to build words (Word Bird). Typically, these books offered between six to seven lightning bolts with some bolts offering three separate prompts. Children were validated when correct answers were selected or reminded to try again.

Electronic books were presented on the researcher's personal iPad.

Comprehension assessments, parent fidelity sessions, and parent trainings were recorded using a SONY digital recorder. Three shared book reading sessions were videotaped with a JVC camcorder.

Additional materials included Parent Training handouts (see Appendix G), intervention Parent Questioning Protocols (see Appendix H), Parent Responses: "What do I say when . . ." (see Appendix I), the Clifford and Fly Guy dolls, a magnifying glass, and a fly swatter which were used as props during story reading and retellings. The child participants were given the opportunity to retell the story to the main character of the story they just read. Child participants received small incentives such as pencils, bubbles, books, and cards at the culmination of each session.

Procedure

This study was organized into the following three components:

Component 1. The seven-week data collection started in the summer of 2014 and took place during the weekday mornings. During the pre-intervention phase (first week), four parent-child dyads were recruited. Parents attended the first parent training (see Appendix G) which provided an overview of the study. They also signed an informed consent form. The parent participants filled out an information form (see Appendix B)

that provided demographic data and information regarding their child's experience with electronic books and current reading practices. Parents were also instructed in the use and access of interactive features of the iPad while viewing the electronic version of *Clifford Goes to Dog School* (2002) by Norman Bridwell. Bi-weekly sessions were scheduled to accommodate parent availability. The remaining weekdays were designated as make-up days in the event that illness or unforeseen events compromised attendance. Copies of the PowerPoint presentation and informed consent form were distributed to the parents.

Following the training, the researcher or one research member videotaped the parent-child dyad reading the electronic book, *Super Fly Guy* by Tedd Arnold (2006). The parents were instructed to read the story in the same manner as they would if reading e-books with their child. Following the parent-child shared reading session the comprehension questions and narrative retelling assessments were conducted by the researcher and one research team member. Following the sessions, the researcher and one research team member used the ACIRI to score the parents and children's interactive reading behaviors. During Component 1, the researcher also administered the ELSA to each of the child participants to assess early literacy skill development.

Component 2. This component evaluated children's comprehension and retelling skills in two phases: (a) baseline phase and (b) intervention phase. The multiple baseline phase consisted of two sessions of data collection for child participants 1 and 2 and four sessions for child participants 3 and 4. At the onset of the first baseline session, the researcher demonstrated the basic procedures to operate the e-book and allowed the child participant to start and stop the narration, turn the pages, access the lightning bolts, and

return to the story. During the baseline phase, child participants explored and viewed the story once on the iPad independently. Participants were reminded that the lightning bolts could be accessed at the story onset. Following the reading session, the researcher administered and recorded the participant's responses to the comprehension assessments (researcher-developed comprehension questions and narrative retellings). The Elicitation Protocol for Narrative Retelling (SALT, 2014) provided the protocol and appropriate examiner prompts for eliciting the retellings (see Appendix D). The child participant was permitted to scroll through the pages of the story during the retelling. Research team members assisted the researcher in scoring the comprehension questions and the narrative retellings.

The intervention phase consisted of six bi-weekly sessions with a mandatory one day between sessions. During this phase, the researcher facilitated the second parent training prior to the first intervention session (see Appendix G). The primary goal of the training and intervention was to educate and provide parents practice in incorporating interactive reading strategies that had been shown to influence comprehension development. These strategies, referred to as E-Boosters, were incorporated in the researcher-developed parent questioning protocol (see Appendix H) for each of the six books utilized during the intervention phase. The following six strategies were targeted: (1) set the purpose for reading, (2) connect e-book features to the story line, (3) engage thinking through interactive discussion, (4) target new vocabulary words, and (6) retell the story to another person.

The parents' questioning protocol consisted of 15 questions in addition to all prompts accessed by the lightning bolts in the story. The parents previewed the story

prior to the shared reading session in order to become familiar with the procedure, interactive features, structural components of the story, and the scripted question prompts in the protocol. Also included with the questioning protocol for each session was a copy of Parent Responses: What do I say when...? (see Appendix I) which provided situational prompts and responses for the parent to use. To the researcher's knowledge, the inclusion of parental comments designed to refocus the child's thinking (E-Booster 2) on the story line after accessing interactive learning features had not been implemented in prior research. A copy of the training presentation was given to the parents for future reference (see Appendix G). Following each shared reading session, the researcher followed the same procedure as during the baseline phase to assess the child's comprehension. One shared-electronic book reading session was randomly selected to videotape and provide data for assessing parent fidelity to the protocol.

Component 3. This component included the maintenance phase that post-tested parent-child interactive behaviors (ACIRI) and assessed the child participants' comprehension scores. The researcher also administered the ELSA within one week following the sixth intervention session. Total scores and subcategory comprehension scores were obtained to compare with pre-intervention scores. One-week after the final intervention session, parents were videotaped reading *Buzz Boy and Fly Guy* by Tedd Arnold (2010) without a scripted question protocol. Parent participants previewed the story and were provided paper and a pen to write questions or take notes if desired. Following the videotaped shared e-book reading session, the researcher administered the final comprehension assessments while the parents completed the Parent Satisfaction Survey (see Appendix J). The researcher and one research team member used the same

procedure previously described when scoring the post-intervention ACIRI. Parents were offered the opportunity to review study results once data was analyzed.

Data Analysis

Videotapes and audiotapes of the ACIRI, comprehension question assessments, and transcribed child participant retellings were reviewed and scored by members of the research team after data collection. Pre- and post-intervention ACIRI and ELSA scores were compared and analyzed for evidence of growth. The researcher and one research team member took an online training module provided by Systematic Analysis of Language Transcripts (SALT Software, 2014) to learn scoring procedures for the Narrative Scoring Scheme. Individual participant's composite scores based on the results of the Narrative Scoring Scheme's coding were analyzed and interpreted.

Data analysis was based on O'Neill and colleagues' (2011) and Kennedy's (2005) recommendations for single case research design. Data obtained during the baseline, intervention, and maintenance phases is presented in a visual graphic format. This method is recognized as the primary means to simultaneously evaluate changes in behavior across different conditions when implementing single case research design (O'Neill et al., 2011). Initially the graph presents the experimental design, sequence of conditions, duration of conditions, and the relationships between the independent and dependent variables. Use of this presentation format supports individual evaluation, interpretation and conclusions regarding the presence of a functional relationship between variables and the social importance of the results. Separate graphs for each participant that depict data paths for composite comprehension scores and retelling scores during baseline, intervention phases, and maintenance phases are presented in Chapter 4.

Multiple baseline graphs presenting across subject results for both measures are also included.

Data levels, trends, variability, and stability of data across the phases were analyzed across phases to determine changes in patterns and immediacy of effects. Occurrences of data overlap were identified to establish the strength of intervention effects using the percentage of non-overlapping data (PND) procedure. This procedure is commonly used to provide a common outcome metric between baseline and intervention treatment (Scruggs & Mastropieri, 1998). The PND was calculated by finding the percentage of data points that are higher than the highest data point in the baseline phase (O'Neill et al., 2011; Scruggs & Mastropieri, 1998). Scruggs and Mastropieri (1998) provide a range of guidelines to assist in determining an estimate of intervention effectiveness. Guidelines for interpretation of PND intervention levels of effectiveness are as follows: greater than 90 = highly effective, 70 to 90 = effective, 50 to 70 = questionable, less than 50 ineffective (Scruggs & Mastropieri, 1998).

Internal and External Validity

Systematic and direct replications establish the external validity for single case research design studies. Rigorous attention to procedural details and descriptions support future replications of this research. Experimental effects can potentially be replicated through multiple probes and evaluations that are conducted to promote internal and external validity. Content validity was strengthened by consulting two reading specialists and one speech pathologist to determine if the comprehension questions and electronic book selection (content reliability) were developmentally appropriate. The social validity of the intervention was addressed through the Parent Satisfaction Survey (see

Appendix J) that was completed by the parent participants and collected following the final videotaped post-intervention sessions. The parents' responses were used to determine if the intervention had social significance (O'Neill et al., 2011) and if the training influenced future parental interactive reading behaviors during shared electronic book reading.

Fidelity of the Intervention

To assure fidelity for the two parent trainings, the researcher developed PowerPoint presentations that were read to ensure consistency in delivery of information. Parent Trainer Fidelity Checklists were used by one research team member who observed the researcher give the presentations or listened to the taped sessions (see Appendix K). This ensured presentation consistency between participants. Fidelity to administration of comprehension assessments was conducted using Fidelity for Administration of Comprehension Assessments (see Appendix L). Two research team members reviewed 20% of the recorded sessions of the researcher administering comprehension questions and eliciting retellings. During the intervention phase, one parent-child reading session was videotaped and analyzed for intervention protocol fidelity by the researcher and a member of the research team (see Appendix M).

Reliability

Inter-rater reliability was calculated for ACIRI results, comprehension question responses, retellings, and treatment fidelity to assure consistency and accuracy of findings. Videotapes of shared book reading and audiotapes of comprehension assessments were scored independently by the researcher and different research team members and then compared. Agreement and disagreement was determined by a point-

by-point (item-by-item) analysis. Inter-rater agreement was calculated by dividing the number of agreements by the number of disagreements plus agreements, and multiplying by 100 (O'Neill et al., 2011). Items in which there was a disagreement were discussed in an effort to reach consensus. At that time, percentages of inter-rater reliability were recalculated.

CHAPTER 4

RESULTS

Introduction and Chapter Overview

This chapter presents the results of a parent-based intervention study focusing on interactive questioning, children's comprehension skills, and parental behaviors during shared electronic book reading with four parent-child dyads from a suburban preschool in southeastern Virginia. The parent-child dyads consisted of three males and one female ranging in age from 48 to 68 months ($M = 55.75$ months) and their biological mothers. None of the child participants had attended formal kindergarten.

Results of this study are presented in four sections. Section 1 presents descriptive information pertaining to the child participants' recent shared reading history and electronic book experience that was obtained from the Parent Information Form. Section 2 addresses the first research question in this study: In what ways does an interactive questioning intervention during shared reading of electronic books impact preschoolers' comprehension scores? Results of comprehension measures are analyzed (ELSA, comprehension questions, and narrative retellings) individually and across participants to determine the effects of parental interactive questioning during shared electronic book reading on child participants' comprehension skills. Data collected from the comprehension questions and narrative-retelling assessments are presented graphically for visual analysis of individual participants' outcomes. Visual analysis is an integral process to single-case research design. By systematic inspection of the graphs, characteristics such as level, slope, and variability of the data can be identified in order to

determine if a functional relationship exists between the independent and dependent variable (Kennedy, 2005; O'Neill et al., 2011).

Section 3 addresses the second research question: What are the effects, if any, of training parents to implement questioning strategies during shared electronic book reading on subsequent parental behaviors during shared electronic book reading? The results of the Adult-Child Interactive Reading Inventory (ACIRI) (DeBruin-Parecki, 2007) which was administered pre-intervention and post-intervention are analyzed to determine the frequency and types of parent-child interactive shared book reading behaviors. Section 4 provides a description of the study's reliability based on inter-rater agreement on observations of parent-child shared electronic book reading sessions and scores for the comprehension measures (question responses and narrative retellings). Included in Section 4 are also the results of parents' and the researcher's implementation fidelity to study procedures. Finally, findings from the Parent Satisfaction Survey are presented.

Section 1

Parent Information Form. Information gleaned from the Parent Information Form revealed that two participants (Child 1 and Child 3) had prior electronic book experience, and had experienced shared print book reading with their mothers between two and three times a week. Child participants 2 and 4 were read to more than three times per week. Child participants 3 and 4 read (viewed) print text independently two to three times per week. None of the participants shared an electronic book with their mothers and only Child 3 viewed an electronic book 2 – 3 times independently during the two weeks prior to the study. Parent 3 reported that interaction was less with an

electronic book and Parent 4 disclosed that references were made to text, sight words, and pictures during shared reading of print text.

Section 2

This section presents results for the three comprehension measures that support investigation of the first research question. Data results collected from the *Early Literacy Skills Assessment* (DeBruin- Parecki, 2005) are presented for all child participants. An individual analysis of each child participant's outcomes for the comprehension questions and narrative story retellings is presented as well as a combined analysis for both measures.

Results for the Early Literacy Skills Assessment (ELSA). The researcher administered the Early Literacy Skills Assessment (DeBruin-Parecki, 2005) to assess the child participants' early literacy levels prior to the first baseline session and following the final intervention session of the seven-week study. The four literacy skills assessed by the ELSA are comprehension, phonological awareness, alphabetic principle, and concepts about print. The comprehension skills component is most pertinent to the objectives of the study. Therefore, results for phonological awareness, alphabetic principle, and concepts about print will not be presented in this chapter. The rationale for this decision follows DeBruin-Parecki and Squibb's (2011) singular focus on the comprehension component in their comprehension study with preschool students. Raw scores for the comprehension component are derived from correct responses as outlined in the ELSA Examiner's Manual (DeBruin-Parecki, 2005). Raw scores are converted to literacy developmental levels based on a range of child participant responses. Ranges for the raw scores measuring the comprehension skills component are as follows: Level 1 = 1-9,

Level 2 = 10-14, Level 3 = 15 and above. Analysis of the raw scores in conjunction with literacy developmental levels provides a finer grained measure of variations in child participant responses.

Results for the participants' comprehension component's raw scores and corresponding literacy developmental levels are presented in Figures 2 and 3.

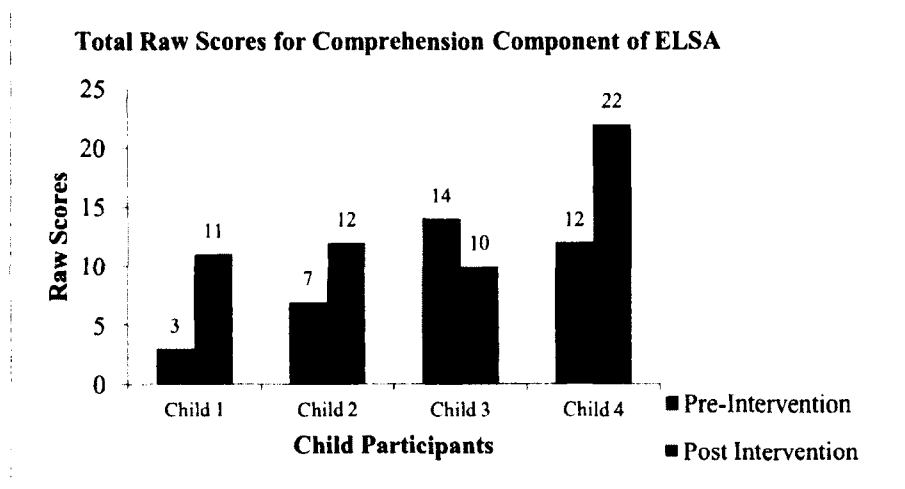


Figure 2. Child Participants' Pre- and Post-Intervention ELSA Raw Scores for Comprehension.

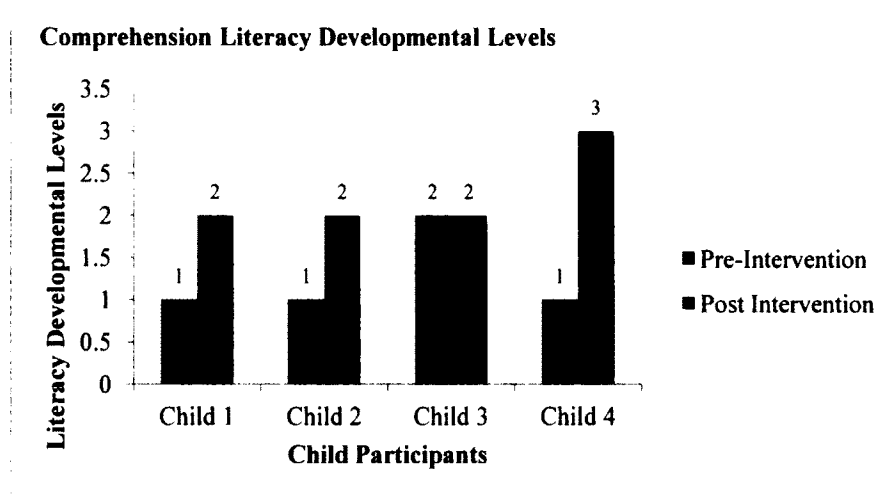


Figure 3. Child Participants' Pre- and Post-Intervention Comprehension Literacy Developmental Levels.

Results of the raw scores in the comprehension skills component demonstrated percent change increases from pre- to post-intervention for three of the child participants: Child 1 = 267%, Child 2 = 71%, and Child 4 = 83%. These increases in raw scores were indicative of an increase in children's literacy comprehension developmental levels. Two child participants (Child 1 and Child 2) increased their comprehension by one developmental level, progressing from the early emergent to the emergent developmental level. Advancement between these developmental levels indicate a progression from the child participants being able to comprehend words in the story, think about the pictures in conjunction with the story and make personal connections to saying and using the new words, predicting what will happen next, and retelling story events that have personal meaning (DeBruin-Parecki, 2005). Child 4 increased two developmental levels progressing from early emergent to competent emergent. Story understanding at this level is displayed by connecting new words to personal experiences, making predictions,

sequencing a story with a beginning, middle, and end, and retelling story events (DeBruin-Parecki, 2005). The increase in the ELSA raw scores and developmental literacy levels suggest that the intervention influenced comprehension skills for these three child participants over the study duration of seven weeks.

Results for Child 3 demonstrated a 29% decrease in the ELSA raw score for comprehension. However, this change did not alter the Level 2 Emergent level achieved on the pretest. At the onset of administration of the post-intervention ELSA assessment, Child 3 verbally indicated that he preferred reading a story only once and he wanted a new story. Though he continued with the assessment using the original book, he appeared to be less engaged in reading, than was observed during the preassessment. Consequently, his results may not reflect his best effort or literacy developmental level.

Results for Comprehension Questions and the Narrative Retellings. The researcher asked the child participants eight comprehension questions and requested the participants to retell the story following electronic book reading sessions in the baseline, intervention, and maintenance phases. Child 1 and Child 2 had two baseline sessions and Child 3 and Child 4 had four baseline sessions. Six sessions comprised the intervention phase that was followed by one session in the maintenance phase. The highest scores attainable were 10 points for the comprehension questions and 35 points for the Narrative Scoring Scheme. Child participants were not permitted to access interactive features while they flipped through the electronic book pages during the retelling.

Results for both measures are combined and presented in Table 7. Means for the baseline and intervention phases were computed by dividing the total of the scores from each session in a phase by the number of sessions. Percentage increases between pre-

intervention and post-intervention were computed by (1) subtracting the baseline score from the intervention score, (2) dividing the difference by the baseline score and (3) multiplying by 100 to convert the quotient into a percentage.

Table 7.

Total Scores, Means, and Percentage Increases for Comprehension Questions and Narrative Retellings

	Total of Baseline Scores	Total of Intervention Scores	Maintenance Score	Baseline Means for Total Scores	Baseline Means for Intervention Scores	Percentage Increases
Comprehension Questions						
Child 1	3	37	7	1.50	6.17	311%
Child 2	1	17	6	0.50	2.83	466%
Child 3	14	34	7	3.50	5.67	62%
Child 4	32	54	10	8.00	9.00	13%
Narrative Retellings						
Child 1	16	142	23	8.00	23.67	196%
Child 2	17	80	29	8.50	13.33	57%
Child 3	52	112	25	13.00	18.67	44%
Child 4	82	182	33	20.50	30.33	48%

Child participants' analyses of the comprehension and narrative retelling outcomes for each child participant follow. An estimate of intervention effectiveness is included and based on the percentage of non-overlapping data (PND). The PND was calculated by determining the percentage of data points in the intervention phase that exceeded the maximum data point in the baseline phase (Scruggs & Mastropieri, 1998, 2001). Guidelines for interpretation of PND intervention levels of effectiveness are: greater than 90 = highly effective, 70 to 90 = effective, 50 to 70 = questionable, less than = 50 ineffective (Scruggs & Mastropieri, 1998).

Child 1. Information obtained from the Parent Information Form disclosed that Child 1, a 57-month White/Caucasian female, had prior experience reading electronic books on her parent's iPad. Reading history for the two weeks prior to the study revealed that she participated in shared reading with her mother using print text 2 – 3 times a week. She had not shared an electronic book with her mother, read print text, or an e-book independently.

Comprehension questions. Child 1 was randomly assigned to two baseline sessions. Eight comprehension questions were administered immediately following each of the nine electronic book reading sessions. Figure 3 shows the nine data points ($M = 5.22$, Range = 1-10) that were collected for Child 1's correct responses. Two data points were collected during the baseline test sessions ($M = 1.5$, Range = 1-2) during week two, six data points were collected bi-weekly for three weeks during the intervention phase ($M = 6.17$, Range = 3-10), and one data point ($X = 7$) was collected during the maintenance phase which followed one week post the final intervention session.

Visual analysis of Child 1's graph reveals a rapid immediacy effect (250%) from second the baseline data point to the initial intervention score. The intervention phase demonstrates a 300% increase in performance level ($M = +4.67$) and high variability in data points with a positive trend for the final three data points. A best-fit-line approach (least square regression) for intervention phase demonstrated high variability in data ($R^2 = 0.0693$) and a slope of 0.19 (see Figure 4).

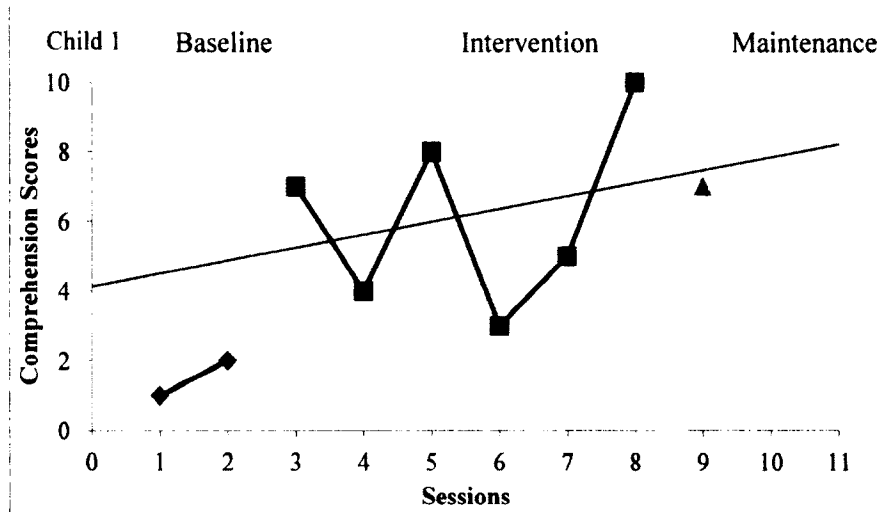


Figure 4. Child 1: Trend line for comprehension scores during intervention phase.

Analysis of the intervention effectiveness using The PND was calculated to estimate effect sizes for the intervention. Results yielded a highly effective (PND =100%) rating. Based on visual inspection of the graphs, and changes in means scores between the baseline and intervention phases, results suggest that Child 1 demonstrated an increase in comprehension skills from baseline to intervention phases as measured by comprehension questions.

Narrative retellings. The narrative retellings of Child 1 were scored and measured using the Narrative Scoring Scheme (See Figure 5). Nine data points were collected ($M = 23.67$, Range = 7-27). Two data points were collected during the baseline phase ($M = 8.00$, Range = 7-9), six data points were collected bi-weekly for three weeks during the intervention phase ($M = 23.67$, Range = 17-27), and one data point ($X = 23$) was collected one week following the final intervention session in the maintenance phase. Mean scores between baseline ($M = 23.67$) and intervention phase ($M = 23.67$) demonstrated a 196% level increase ($M = +15.67$).

Visual analysis reveals a 22% decrease from the first baseline score to the second score. A rapid immediacy effect (145%) was observed from from the second baseline score to the first intervention score. A positive increase in trend and moderate variability was observed in the intervention phase (slope = 1.17, $R^2 = 0.74$). A 59% increase from the first intervention data point to the last intervention data point was found. A best-fit-line approach (least square regression) for the intervention phase is presented in Figure 5.

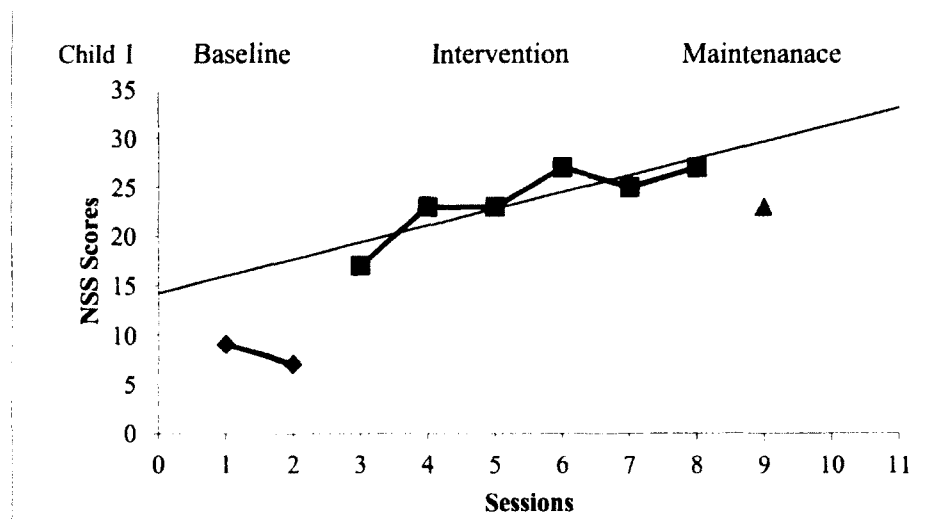


Figure 5. Child 1: Trend line for NSS scores during intervention phase.

The PND was calculated to estimate effect sizes for the intervention. Results yielded a highly effective rating (100%).

Summary of results for Child 1. Based on visual inspection of the graphs, and positive changes in means scores between the baseline and intervention phases for comprehension questions (311%) and narrative retellings (196%), results suggest that Child 1's overall comprehension skills benefitted by the intervention.

Child 2. Information obtained from the Parent Information Form disclosed that Child 2, a 49-month White/Caucasian male, had no prior experience reading electronic books at home. Reading history for the two weeks prior to the study revealed that he participated in shared reading with his mother using print text more than three times a week, but had not read print text independently. Initially he was enthusiastic about participating and engaging with the electronic books. Following the second intervention session and continuing intermittently through session five, Child 2 demonstrated emotional difficulty in being apart from his mother for the assessment session with the researcher, which was 20 minutes in duration. Because he was positive and enthusiastic about the electronic book reading sessions when discussed at home, she decided to finish the study. Therefore, his responses and effort should be interpreted with caution because they may not indicate his best effort.

Comprehension questions. Child 2 was randomly assigned to two baseline sessions. Figure 7 presents the nine data points ($M = 2.67$, Range = 0-6) that were collected. Two data points were collected during the baseline test sessions ($M = 1.5$, Range = 1-2) during week two, six data points were collected bi-weekly for three weeks during the intervention phase ($M = 2.83$, Range = 0 – 15), and one data point ($X = 6$) was collected during the maintenance phase which followed one week post the final intervention session.

Visual analysis of Child 2's (see Figure 5) graph reveals a rapid immediacy effect with a 250% increase from the final the baseline score to the initial intervention score. The intervention phase demonstrates a 466% increase in performance ($M = + 2.33$). The data shows high variability with a wide spread of points indicating a lack of stability with

no pattern evident. The final three data points indicate a positive upward trend (slope = 0.39). A best-fit-line approach (least square regression) for the intervention phase demonstrated high variability in data and a flat slope of 0.03 ($R^2 = 0.0008$). The PND was calculated to estimate effect sizes for the intervention. Results yielded an effective (83%) rating. A best-fit-line approach (least square regression) for the intervention phase is presented in Figure 6.

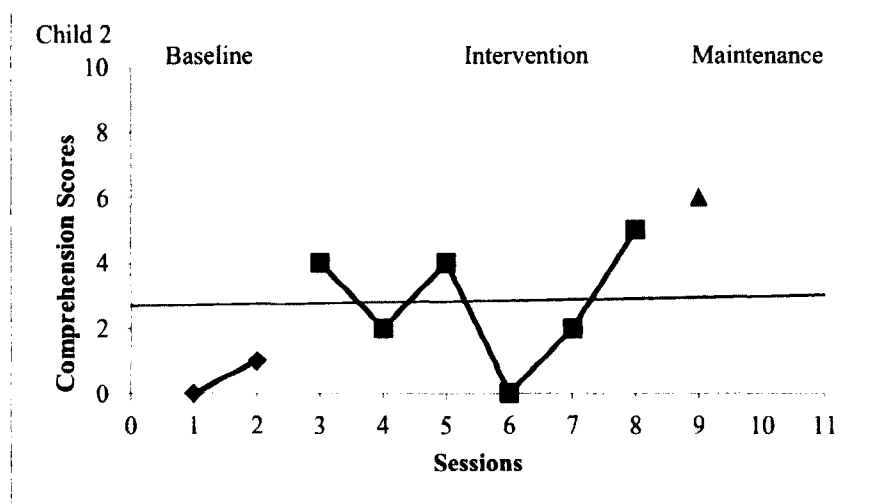


Figure 6. Child 2: Trend line for comprehension scores during the intervention phase.

Narrative retellings. Child 2's narrative retellings were scored and measured using the Narrative Scoring Scheme (see Figure 9). Nine data points were collected ($M = 14.00$, Range = 6 - 21). Two data points were collected during the baseline phase ($M = 8.50$, Range = 6 - 11), six data points were collected bi-weekly for three weeks during the intervention phase ($M = 13.33$, Range = 7 - 21), and one data point ($X = 29$) was collected one week following the final intervention session. Mean scores between

baseline ($M = 8.50$) and intervention phase ($M = 13.33$) demonstrated a 57% level increase ($M = +4.83$).

Visual analysis reveals a rapid decline (45%) from the first baseline to the second base line score. The first two sessions in intervention phase demonstrated stability of data followed by a 62% increase (slope = 0.13). This increase was followed by a rapid decline (67%) in the next data point which showed a positive increase (143%) in trend between the sixth and eighth session in the following two sessions. A 71% increase was observed between the final intervention session and the maintenance phase. A best-fit-line approach (least square regression) for the intervention phase demonstrated high variability in data and a low magnitude decreasing slope of -0.17 ($R^2 = 0.0039$) (see Figure 7).

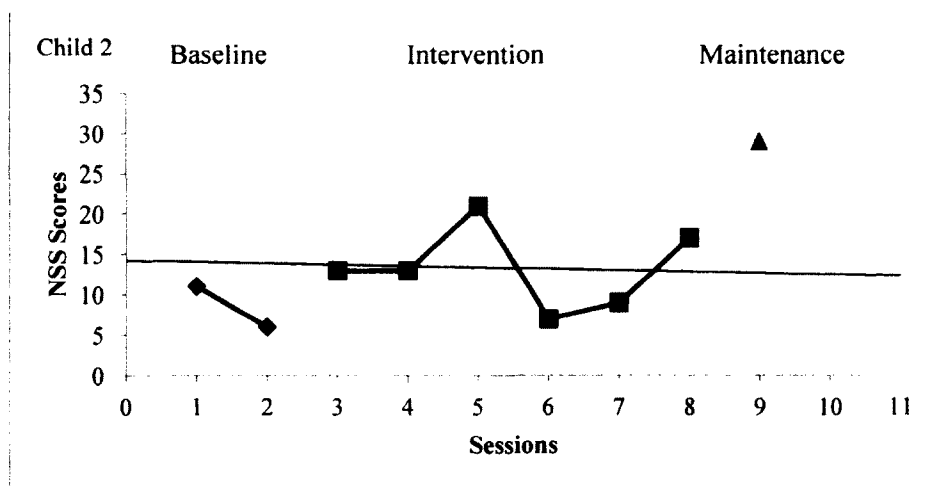


Figure 7. Child 2: Trend line for NSS scores during intervention phase.

The PND was calculated to estimate effect sizes for the intervention. Results yielded a questionably effective rating (67%).

Summary of results for Child 2. Based on visual inspection of the graphs, and changes in means scores between the baseline and intervention phases, results suggest that Child 2's comprehension skills as measured by the comprehension questions benefitted more (466% increase) than the results of the retellings (57% increase).

Child 3. Information obtained from the Parent Information Form revealed that Child 3, a 49-month White/Caucasian male, had prior experience reading electronic book on his parents' Kindle book reader. During the past two weeks prior to the study, he read print text with his mother two-to-three times and more than three times independently. He had not participated in shared electronic book reading with his mother, but had read electronic books independently two to three times during the prescribed time period. Child 3 participated willingly during the assessments. As previously mentioned, the post-intervention administration of the ELSA was the one exception. He did not want to read *Violet's Adventure* for a second time, but did comply and completed the assessment with the researcher.

Comprehension questions. Child 3 was randomly assigned to four baseline sessions. Four data points were collected during the baseline sessions ($M = 3.5$, Range = 0 - 7) during weeks two and three, six data points were collected bi-weekly for three weeks during the intervention phase ($M = 5.6$, Range = 4 - 7), and one data point ($X = 7$) was collected during the maintenance phase which followed one week post the final intervention session.

Visual analysis of Child 3's graph reveals an increasing linear trend followed by a decrease in 29% decrease in scores from the final baseline score ($N = 7$) to the first intervention score ($N = 5$). Comparisons of the means for the baseline ($M = 3.5$) and intervention phase ($M = 5.6$), revealed a 62% increase ($M = + 2.17$) in points. The intervention phase depicts a decreased level in the magnitude in the data. A line of best-fit (least square regression) for the intervention phase indicated variability in the data and an increase in trend within the phase though not exceeding the final baseline data (Slope = 0.29, $R^2 = 0.19$) (see Figure 8).

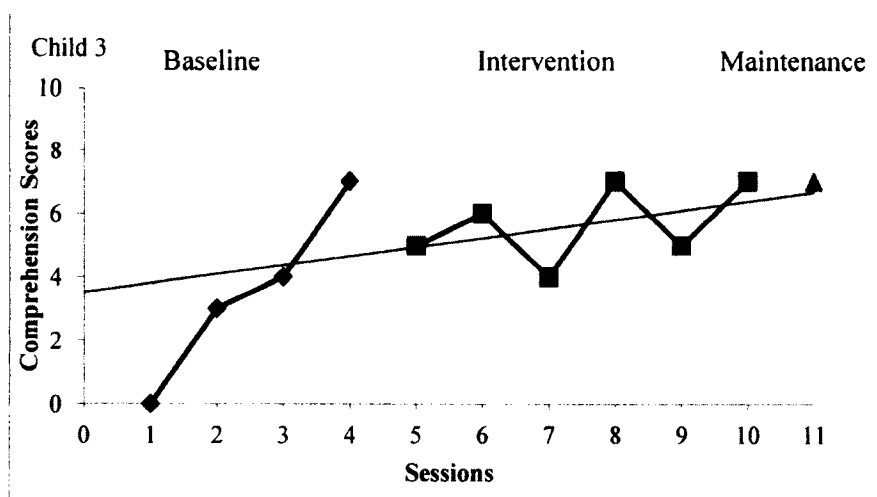


Figure 8. Child 3: Trend line for comprehension scores during intervention phase.

Analysis of the effect size of the intervention using PND was conducted to estimate effect sizes for the intervention. Results yielded an ineffective rating due to zero non-overlapping data between pre-intervention and intervention phases.

Narrative retellings. Child 3's narrative retellings were scored and measured using the NSS (see Figure 13). Eleven data points were collected ($M = 16.4$,

Range = 5-25). Four data points were collected during the baseline phase ($M = 13.00$, Range = 5-17), six data points were collected bi-weekly for three weeks during the intervention phase ($M = 18.67$, Range = 13-23), and one datum point ($X = 25$) was collected one week following the final intervention session. Mean scores between baseline ($M = 13.00$) and intervention phase ($M = 18.67$) demonstrated a 44% level increase ($M = +5.67$).

Visual analysis reveals a rapid decline in scores (240%) on the second session which rebounded to the original score on the fourth baseline session. The first interventions session (seventh session) reveals a 24% decrease which is followed by a moderate positive trend and data remaining stable for four sessions and an increase of 21% for the final intervention data point (slope 0.49). A best-fit-line approach (least square regression) for the intervention phase demonstrated moderate variability in data ($R^2 = 0.70$) and a slope of 1.43. An increase in slope (+ 4) is shown between the final intervention datum and the maintenace phase datum. This trend line for the intervention phase is presented in Figure 9.

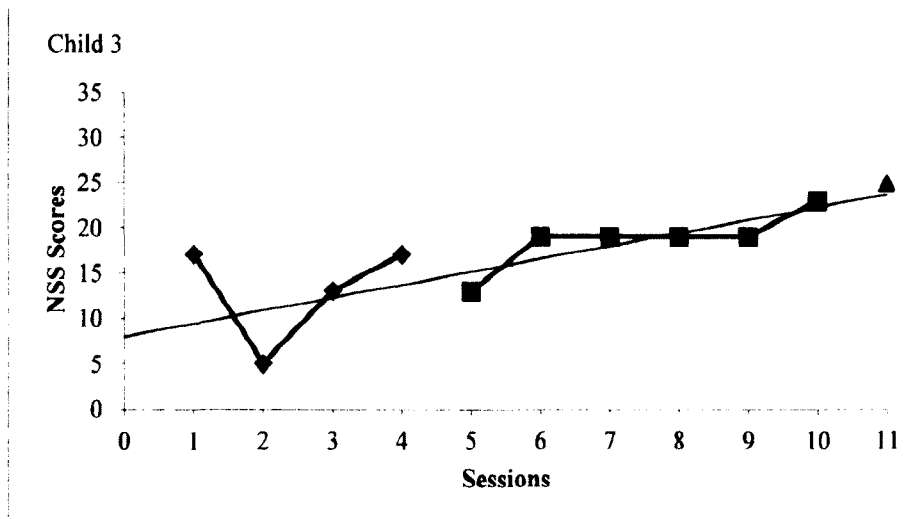


Figure 9. Child 3: Trend line for NSS scores during intervention phase.

The PND was calculated to estimate effect sizes for the intervention, which yielded an effective rating of 83%.

Summary of results for Child 3. Based on visual inspection of the graphs and analysis of mean change and PND, findings are inconsistent regarding the effect of the intervention on comprehension scores. However, analysis of mean scores changes between baseline and intervention phases and NSS results for retellings suggest that the intervention had moderately positive effects on Child 3's comprehension as measured by story retellings.

Child 4. The information obtained from the Parent Information Form disclosed that Child 4, a 68-month, White/Caucasian male, had no prior experience reading electronic books at home. He participated in both shared book reading with his mother and reading print text independently more than three times per week during the two weeks that preceded the study. Child 4 was cooperative and often elaborated on his ideas during assessment sessions.

Comprehension questions. Child 4 was randomly assigned to four baseline sessions. Figure 15 presents the 11 data points ($M = 8.73$, Range = 6 – 10). Four data points ($M = 8.00$) during the baseline phase, six points were collected bi-weekly during the intervention phase ($M = 9.00$, Range = 6 – 10) and one data point was collected during the maintenance phase ($X = 10$). The difference between baseline and intervention mean scores revealed a 13% increase level ($M = + 1.00$) of performance. From initial baseline assessment to the final intervention session, Child 4 demonstrated a 67% increase.

Visual analysis reveals a baseline that initially demonstrates a positive increase in trend that remains flat and slightly decreases in the last baseline session. The onset of the first intervention session yielded a small 13% increase in level from the final baseline session. This was followed an upward trend (11% increase) which achieved the maximum score. A sharp decrease (40%) in scores was observed in session eight which increased (67%) to the maximum score during the final interventions session. This level was sustained in the maintenance phase. A best-fit-line approach (least squares regression) for the intervention phase indicates a high variability, and a small decrease in trend (slope = -0.06, $R^2 = 0.0048$) See Figure 10.

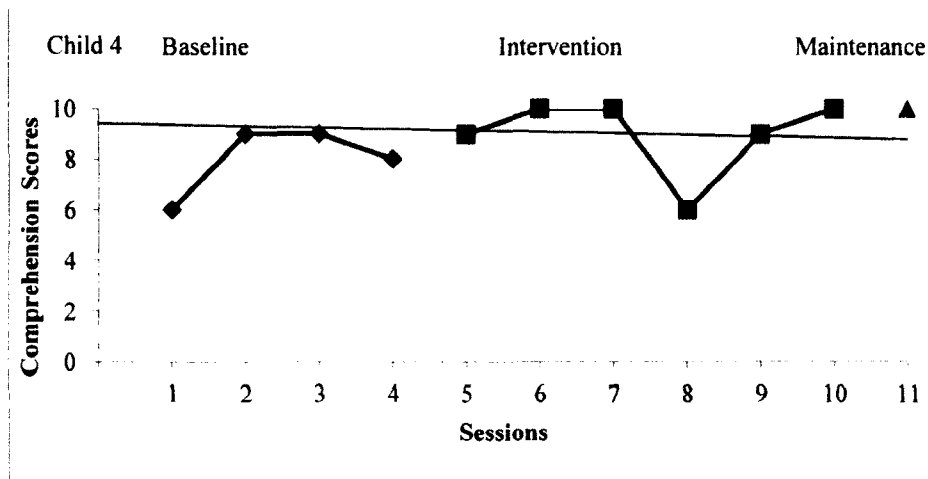


Figure 10. Child 4: Trend line for comprehension scores during the intervention stage.

The PND was calculated to estimate effect sizes for the intervention, which yielded a questionably effective rating of 50%.

Narrative retellings. Child 4's narrative retellings were scored and measured using the NSS (Heilmann et al., 2010) (see Figure 17). Eleven data points were collected ($M = 27.00$, Range = 17 – 33). Four data points were collected during the baseline phase ($M = 20.5$, Range = 17 – 23), six data points were collected bi-weekly for three weeks during the intervention phase ($M = 30.33$, Range = 27- 33), and one data point ($X = 33$) was collected one week following the final intervention session during the maintenance phase. Means scores between baseline ($M = 20.50$) and the intervention phase ($M = 30.33$) demonstrated a 48% level increase ($M = +9.83$).

Visual analysis reveals an increasing baseline trend, which stabilizes prior to the first intervention data point. An increase between the final baseline data point and first intervention data points shows a 26% increase in performance level. A best-fit-line approach (least squares regression) (see Figure 18) for the intervention phase indicates an

increasing trend (slope = 0.69, $R^2 = 0.28$) with low magnitude and moderate variability.

The data point for the maintenance phase indicates a rise in slope (+ 2) from the last intervention session.

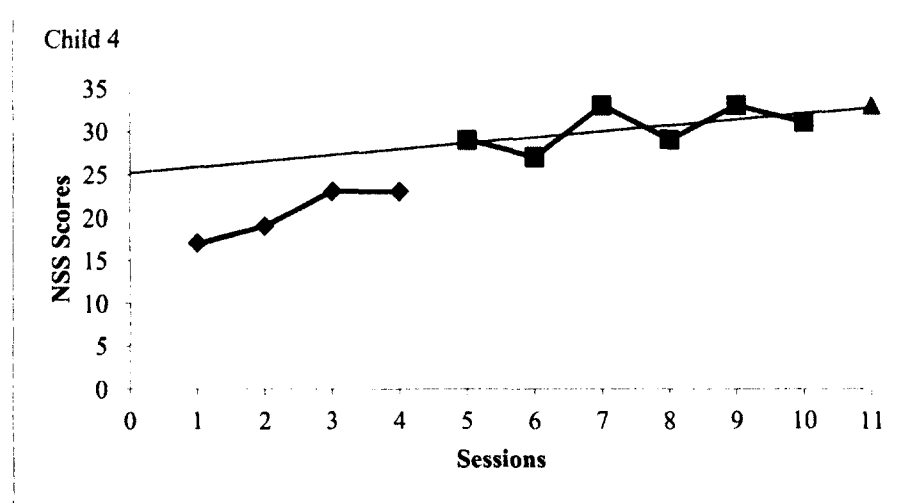


Figure 11. Child 4: Trend line for NSS during intervention phase.

The PND was calculated to estimate effect sizes for the intervention, which yielded a highly effective rating of 100%.

Summary of results for Child 4: Based on visual inspection of the graphs and changes in mean scores between the baseline and intervention phases, results for comprehension questions suggest that Child 4 received a minimally positive increase in comprehension skills. Analysis of mean scores changes between baseline and intervention phases and NSS results for retellings suggest that the intervention had positive effects on Child 4's comprehension as measured by story retellings.

Analysis of correct responses to types of questions. Analysis of the number of correct responses to different types of questions was not an objective of the two research

questions. However, these findings provide added insight into intervention effectiveness on correct responses to different types of questions for the child participants. The comprehension question assessment for each electronic book solicited answers for four literal, three inferential, and one vocabulary question. The percentage of change for correct responses in the three question categories from pre-intervention to post-intervention was calculated. First, the total number of correct responses was divided by the total amount of possible responses for pre- and post-intervention scores. The pre-intervention quotient was subtracted from the post-intervention quotients. The difference was multiplied by 100 to obtain the percentage. Table 8 presents the percentage change for correct answers to the different types of questions from pre-intervention to post-intervention for the four child participants.

Table 8.

Child Participants' Percentage of Change for Correct Responses to Types of Questions

	Literal Questions		Inference Questions		Vocabulary	
	Pre-	Post	Pre-	Post	Pre-	Post
Correct Responses/Total Possible Responses						
Child 1	2/4	20/24	1/6	9/18	0/2	2/6
Child 2	1/4	8/24	0/6	5/18	0/2	3/6
Child 3	8/16	18/24	8/12	8/18	2/4	3/6
Child 4	14/16	23/24	11/12	16/18	2/4	6/6
Percentage Change						
Child 1		33%		50%		33%
Child 2		8%		28%		50%
Child 3		25%		- 23%		0%
Child 4		8%		- 3%		50%

Positive growth was observed at different levels from pre-intervention to intervention scores for all participants in the literal question category (range 8% -33%). Child 1 exhibited increases in correct answers in all areas: literal questions = 33%, inference questions = 50% and vocabulary (33%) questions. Child 2 results revealed a negligible increase (8%) in literal questions, a 28% increase in inference questions and a 50% increase in vocabulary. An increase (25%) was only noted in literal questions for Participant 3. A decrease (-23%) in inferential questions along with no change in vocabulary were also observed. Participant 4 showed a negligible increase in literal questions, a decrease (-3%) in inference questions, and a 50% increase in vocabulary. The decreases observed in for Participant 3's (-23%) and Participant 4's (-3%) performances accounted for by the relatively high scores for the four baseline sessions (Participant 3: 8/12 correct responses; Participant 4: 11/12 correct responses). These results limited the observable growth potential as measured by the assessment.

Combined results for comprehension questions and narrative retellings.

Analysis of the individual and cumulative results for the comprehension component of the ELSA reveals positive literacy level increases for Child 1 and Child with Child 4 gaining two levels. Results for Child 3 on the comprehension component of the ELSA did not demonstrate a literacy level change. Positive increases in comprehension questions and narrative retellings were observed for all four participants. Table 10 presents each participant's percentage increase following the intervention, as well as a combined analysis, for the three comprehension skill assessments. Total mean scores were calculated from the sum of the participants' scores for each comprehension assessment.

Table 9.

Percentage Change in Child Participant's Pre- and Post- Intervention Mean Scores on the Comprehension Assessments

	ELSA (Comprehension Component)	Comprehension Questions	Narrative Retellings
Child 1	267%	311%	196%
Child 2	71%	466%	57%
Child 3	-29%	62%	44%
Child 4	83%	13%	48%
Total mean	98%	213%	86%

Data analysis for results on the comprehension questions reveals an increase (213%) in the total mean of the child participants' comprehension scores from baseline to intervention phases. Child 2 demonstrated the greatest mean level increase (466%) of 2.33 in correct responses to questions. Child 1 followed with a mean level increase (211%) of 4.67 correct responses in the intervention phase. Child 3 produced a 2.17 (62%) gain and finally, Child 4 demonstrated a mean increase (13%) of 1.00 correct responses.

Figure 12 provides a multiple baseline graph presenting the Child participants' scores on the comprehension questions. An increase in the final intervention scores reflects an increase from the final baseline score for Child participants 1, 2, and 4 while Child 3 remained constant. The intervention phases demonstrate differing levels of variability among the participants. Child participants 1, 2, and 4 showed a positive trend in the last three intervention sessions that was not observed for Child 3. During the maintenance phase, parents facilitated the shared reading sessions without researcher

developed scripts. Scores for the maintenance phase demonstrate a level increase for Child participants 1, 2, and 4. Child 3's maintenance score remained constant with the final baseline and final intervention score.

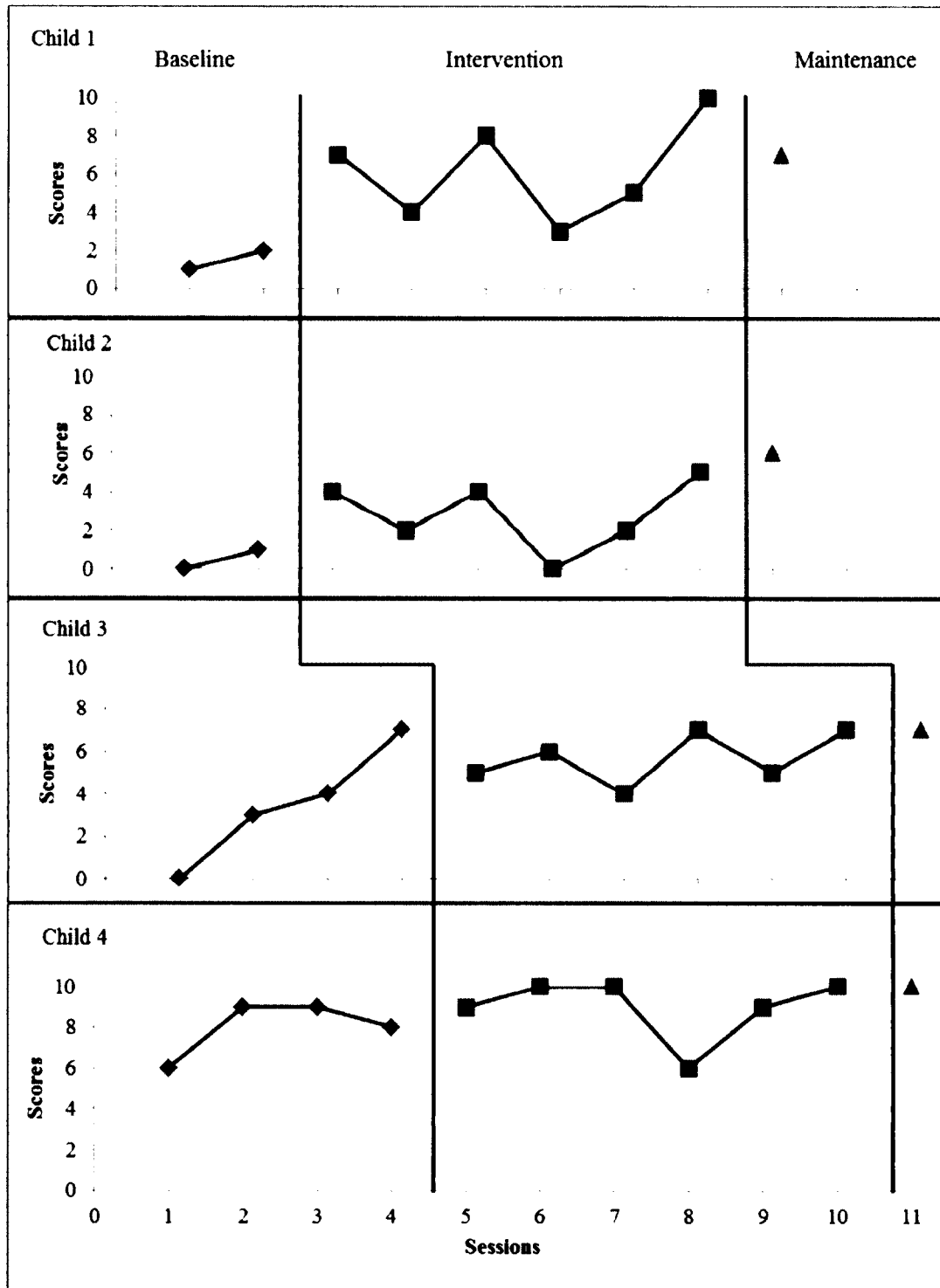


Figure 12. Multiple baseline graphs for comprehension questions in baseline, intervention and maintenance phases for child participants 1-4.

Narrative Scoring Scheme. Figure 13 presents the results for the participants' narrative retellings.

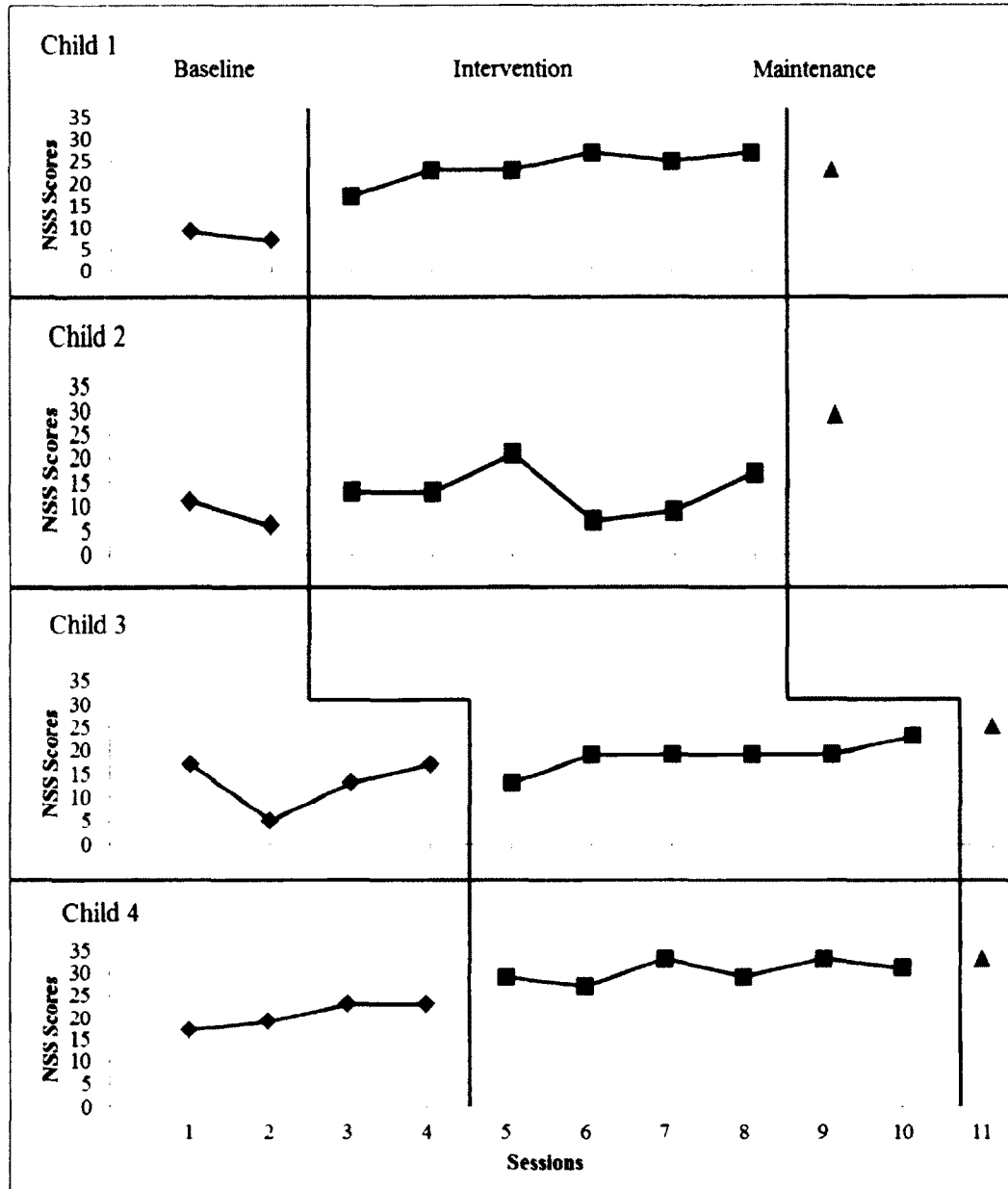


Figure 13. Multiple baseline graph for Narrative Scoring Scheme results for child participants 1-4.

Findings show an increase in means from baseline NSS scores to intervention mean scores for all four child participants (Range = 44% -196%). Child 1 demonstrated the greatest mean increase of 196%, which was succeeded by Child 2 (57%), Child 4 (48%) and Child 3 (44%). Visual analysis indicates less overall variability than the comprehension questions.

Estimate of intervention effectiveness. Calculating the percentage of non-overlapping data for the comprehension and retelling assessments provided an estimate of the effect size for the independent variable (interactive questioning) on the dependent variables (comprehension questions and the narrative retellings (Scruggs & Mastropieri, 1998, 2001). Table 10 presents the child participants' PND results and their estimated levels of effectiveness.

Table 10.

Percentage of Nonoverlapping Data (PND) and Corresponding Estimates of Intervention Effectiveness

	Comprehension Questions	Effectiveness	Narrative Retelling	Effectiveness
Child 1	100%	Highly effective	100%	Highly effective
Child 2	83%	Effective	67%	Questionable
Child 3	0%	Ineffective	83%	Effective
Child 4	50%	Questionable	100%	Highly effective

PND computation of effect sizes for the intervention on comprehension questions and narrative retellings reveal that some children responded to the intervention better than others did. PND estimates of effect sizes suggest that the interactive question intervention appears to provide a larger positive effect on Child 1's comprehension skills.

On the other hand, the effectiveness of the intervention varied with the other three participants according to the type of comprehension skill measured.

Section 3

Results for the Adult/Child Interactive Reading Inventory (ACIRI). The ACIRI (DeBruin-Parecki, 2007) was administered to obtain data that would support the second research question: What are the effects, if any, of training parents to implement questioning strategies during shared electronic book reading on subsequent parental behaviors during shared electronic book reading? The researcher and one research team member videotaped parent and child interactive behaviors during shared electronic book reading prior to the baseline sessions and one week after the last intervention session. Pre-intervention sessions ranged from 5 minutes and 43 seconds to 20 minutes and 43 seconds ($M = 10$ minutes and 26 seconds) while intervention sessions ranged from 12 minutes 49 seconds to 18 minutes and 16 seconds ($M = 17$ minutes and 15 seconds). The ACIRI was used to measure interactive behaviors observed on the videotapes by the researcher and one research team member. Point-by-point reliability was conducted with consensus coding for the cumulative scores.

Parent and child interactive behaviors were measured separately in three categories: (1) enhancing attention to text, (2) promoting interactive reading and supporting comprehension, and (3) using literacy strategies. Each category was subdivided into four related behaviors. The individual parent and child scores for each category could optimally produce 12 points. A mean score was calculated for each category and then a total mean was calculated for the sum of the combined categories. Interactive behaviors were scored on frequency of occurrence with the potential range of

0-3 points. Description for the scoring is described as 3 = most of the time (4 or more times), 2 = some of the time (2 – 3 times), 1 = infrequently (1 time), 0 = no evidence (DeBruin-Parecki, 2007). In addition, a mean was calculated from the total of the parents' means for each category pre- and post-intervention. The same procedure was repeated for the child participants' scores. Table 11 presents the parent participants' mean results for the individual categories, their total mean score, the total mean derived from combining all the participants' means for each category, and the total percentage of change from pre-intervention to post-intervention. ACIRI results for the child participants are presented in the same format in Table 12.

Table 11.

Parents' Pre- and Post-Intervention Interactive Behaviors

	Enhancing Attention to Text		Promoting Interactive Reading		Using Literacy Strategies		Parent Total Mean	Parent Total Mean
	Pre-	Post	Pre-	Post	Pre-	Post	Pre-	Post
<i>Mean Scores</i>								
Parent 1	2.25	2.75	0.50	1.25	0.00	3.00	0.92	2.33
Parent 2	2.75	3.00	1.50	1.00	0.25	0.75	1.50	1.58
Parent 3	1.50	2.25	0.00	2.00	0.25	1.50	0.58	1.92
Parent 4	1.50	2.25	0.75	1.50	0.50	3.00	0.92	2.25
<i>Total Mean for Combined Scores</i>								
	2.00	2.56	0.69	1.44	0.25	2.06	0.98	2.02
<i>Percentage Change for Each Category</i>								
							Total Mean	
Parent 1	22%		150%		300%		153%	
Parent 2	9%		-33%		200%		5%	
Parent 3	50%		200%		500%		231%	
Parent 4	50%		100%		500%		145%	
<i>Mean Percentage Change Across Parent Participants</i>								
	28%		92%		724%		106%	

Table 12.

Child Participants' Pre- and Post-Intervention Interactive Behaviors

	Enhancing Attention to Text		Promoting Interactive Reading		Using Literacy Strategies		Child Total Mean	Child Total Mean
	Pre-	Post	Pre-	Post	Pre-	Post	Pre-	Post
<i>Mean Scores</i>								
Child 1	1.50	2.50	0.25	1.50	0.75	1.75	.83	1.92
Child 2	2.75	3.00	1.75	1.50	0.75	1.00	1.75	1.83
Child 3	1.50	2.25	0.00	2.00	0.00	1.50	.67	1.92
Child 4	1.75	2.25	1.50	1.25	0.50	3.00	1.25	2.17
<i>Total Mean for Combined Scores</i>								
	1.88	2.50	0.88	1.56	0.50	1.81	1.13	1.96
<i>Percentage Change for Each Category</i>								
							Total Mean	
Child 1	67%		50%		133%		131%	
Child 2	9%		14%		33%		5%	
Child 3	50%		200%		150%		187%	
Child 4	29%		17%		500%		74%	
<i>Mean Percentage Change Across Child Participants</i>								
	33%		77%		262%		73%	

Graphic representation and a description of ACIRI results for each parent-child dyad follow. The category of Promoting Interactive Reading and Supporting Comprehension was abbreviated to Promoting Interactive Reading and Pre- and Post designate pre- and post-intervention scores on the bar graphs.

Parent – Child Dyad 1. Figure 14 presents ACIRI results for Parent – Child 1.

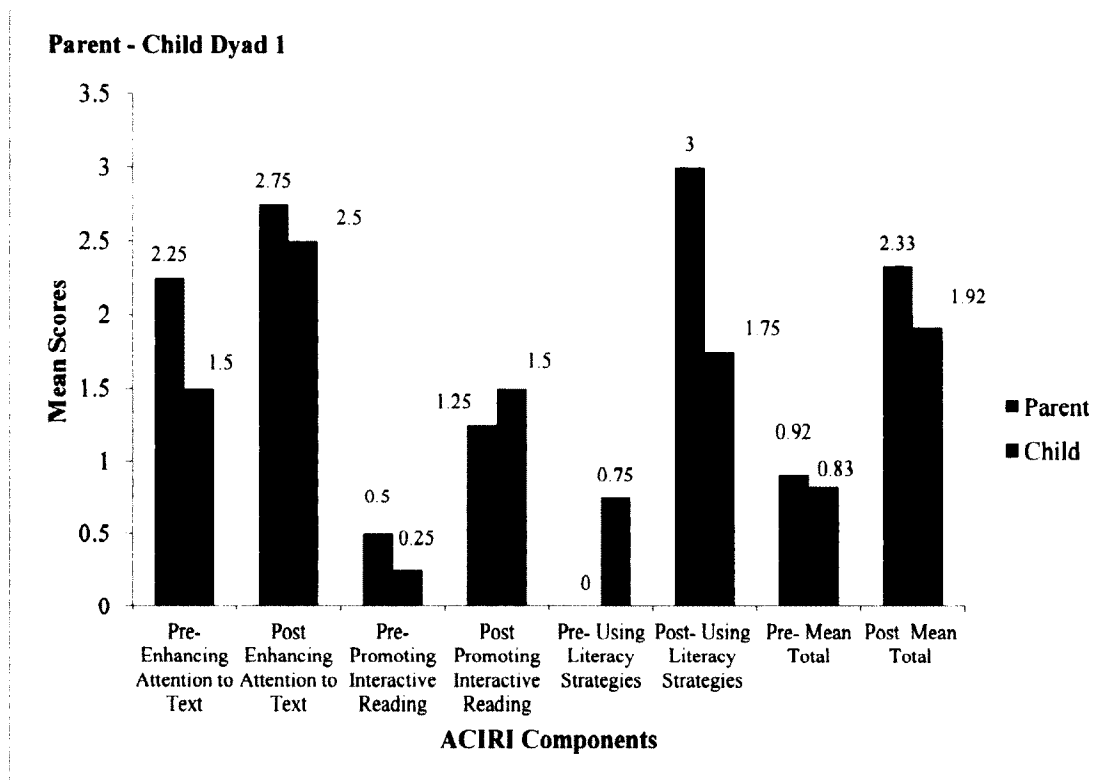


Figure 14. Parent – Child Dyad 1: Pre-intervention and post-intervention mean scores for ACIRI components and their total mean.

Parent 1 demonstrated increases in interactive shared reading behaviors that ranged from 22% to 300% between pre- and post-intervention. The largest increase (300%) was found in Using Literacy Strategies and the smallest difference from pre- to post-intervention was Enhancing Attention to Text (22%). The mean total revealed an overall level increase of 1.41 (153%). Child 1 demonstrated increases in all interactive literacy behaviors with a 133% increase noted in Using Literacy Strategies. Percentages of increase ranged from 50% to 133% with Promoting Interactive Reading as the lowest category. The combined means total revealed an overall increase of 131% from pre-baseline to post-intervention.

Parent – Child Dyad 2. Figure 15 presents ACIRI results for Parent – Child Dyad 2.

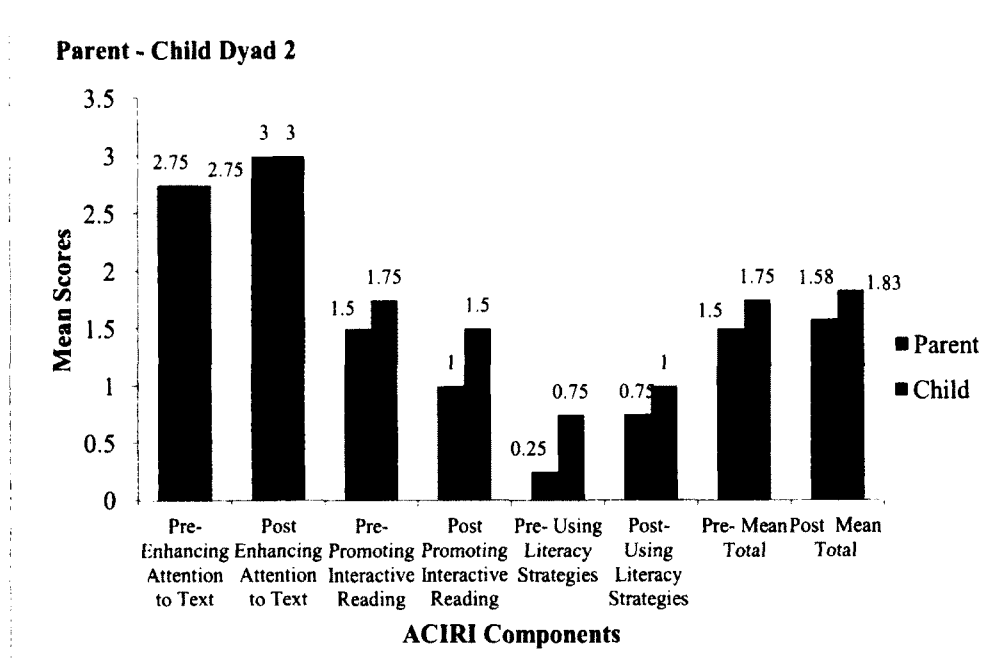


Figure 15. Parent – Child Dyad 2: Pre-intervention and post-intervention mean scores for ACIRI components and their total mean.

Parent 2 demonstrated strong mean scores for Enhancing Attention to Text for both the pre-baseline ($M=2.7$) and post-intervention scores ($M = 3.00$) resulting in a 9% increase. A strong increase was found for Using Literacy Strategies (200%) and a small increase was gained in the Total Mean Score (5%). In contrast, a 33% decrease was observed in Promoting Interactive Reading from pre-baseline to post-intervention mean scores. Child 2 received identical mean scores as Parent 2 in Enhancing Attention to Text category demonstrating a 9% increase from pre-baseline to post-intervention. Increases were also found in using Literacy Strategies (33%) and the Cumulative Mean

total (5%). A 25% decrease was also noted in Promoting Interactive Reading, the same category that a decrease was observed for Parent 2.

Parent – Child Dyad 3. Figure 16 presents ACIRI results for Parent – Child Dyad 3.

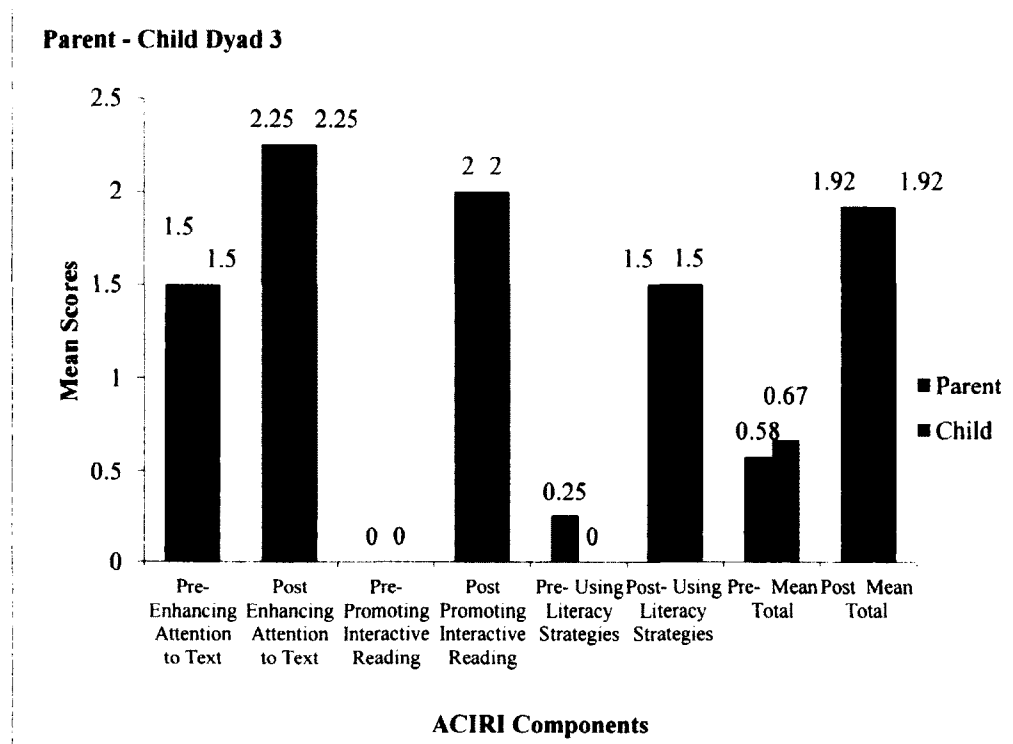


Figure 16. Parent – Child Dyad 3: Pre-intervention and post-intervention mean scores for ACIRI components and their total mean.

The ACIRI assessment results for Parent 3 reveal increased mean levels that ranged from 50% to 200% in all three categories with the mean total at 231%. Promoting Interactive Reading (200%) and Using Literacy Strategies (500%) exceeded Enhancing Attention to Text (50%). The mean score and percentage increase (50%) for Child 3 were identical to Parent 3 in the Enhancing Attention to Text category. The largest

increase was in Promoting Interactive Reading (200%). The total mean revealed an increased performance level by 187%.

Parent – Child Dyad 4. Figure 17 presents ACIRI results for Parent – Child Dyad 4.

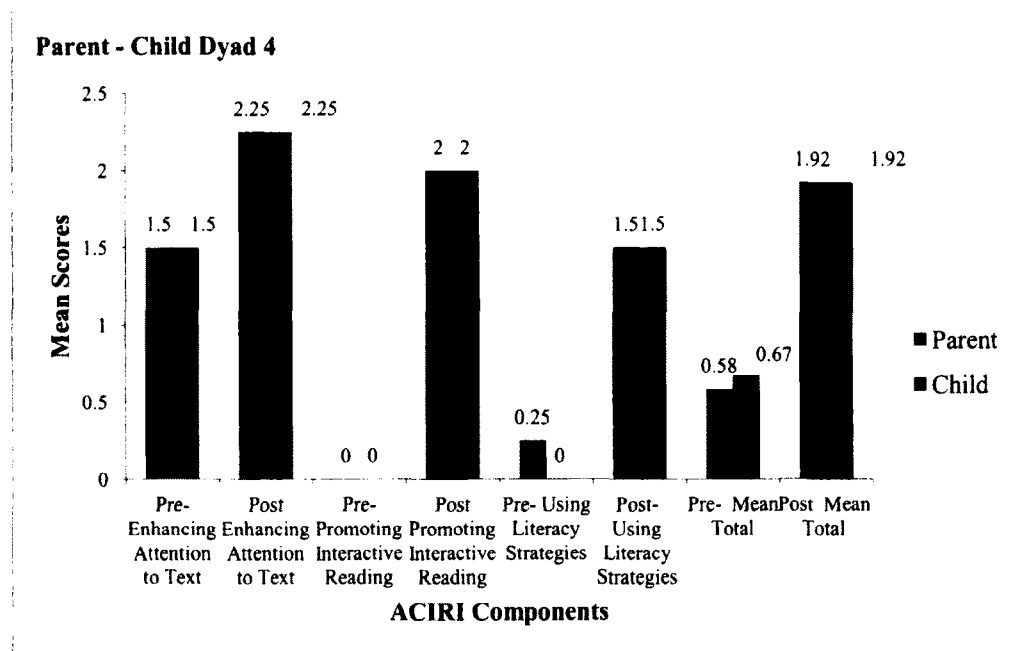


Figure 17. Parent – Child Dyad 4: Pre-intervention and post-intervention mean scores for ACIRI components and their total mean.

Parent 4 demonstrated mean score increases in all skill levels with the greatest increase (500%) in Using Literacy Strategies. The mean total revealed an overall 145% increase in performance level. Figure 27 presents the ACIRI results for Parent 4.

The percentage of increase in Using Literacy Strategies for Child 4 was identical to the results for Parent 4. In comparison, a small increase (29%) was revealed for Enhancing Attention to Text and a 17% decrease was found in Promoting Interactive reading. The

percentage of increase in Using Literacy Strategies for Child 4 was identical to the results for Parent 4. In comparison, a small increase (29%) was revealed for Enhancing Attention to Text and a 17% decrease was found in Promoting Interactive reading.

Parent and child comparisons of total ACIRI mean scores. Figure 18 presents the comparison of ACIRI total means for parent and child participants.

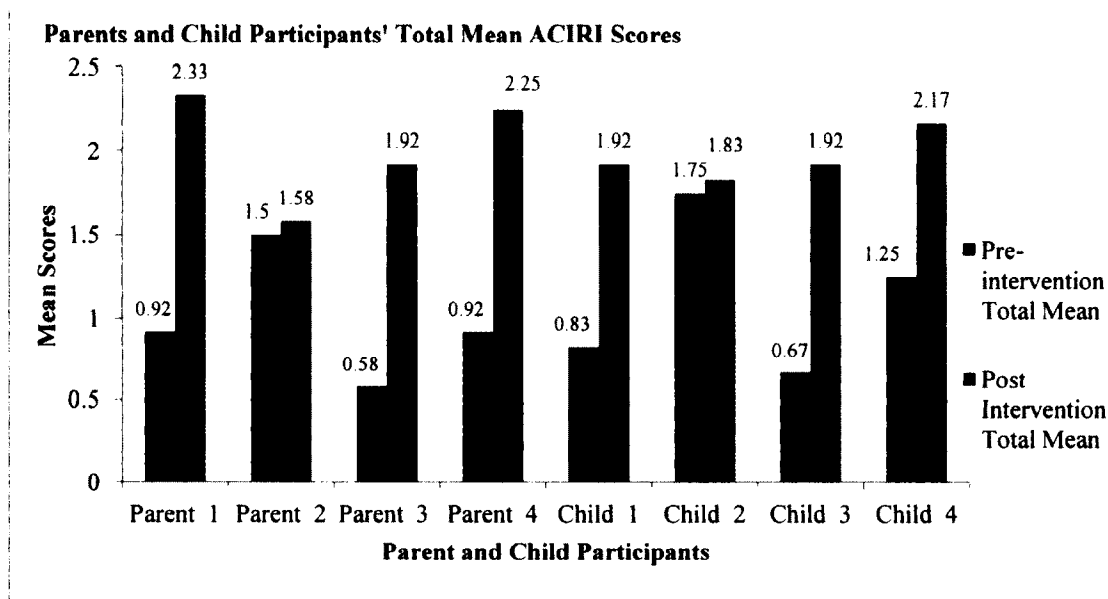


Figure 18. Parent and child participants' total mean ACIRI scores.

Comparisons of the total means for each parent participant reveal that all four parent participants increased their mean score. Parent 3 demonstrated the largest overall increase of 231%. Parents 1 and 4 increased their mean scores 153% and 145% respectively. Parent 2 revealed a slight increase of 5%. The total mean results for each child participant revealed the same ranking order in percentage increase as the parent participants' results: Child 3 = 187%, Child 1 = 131%; Child 4 = 74%, and Child 2 = 5%.

Results for combined categories of Promoting Interactive Reading and Supporting Comprehension and Using Literacy Strategies. Because the first research question centered on interactive questioning and comprehension, a frequency count of interactive behaviors in the subcategories of Promoting Interactive Reading and Supporting Comprehension and Using Literacy Strategies provided additional data for analysis that were not obtained from conventional scoring. Both subcategories support story comprehension during the shared reading process. Promoting Interactive Reading and Supporting Comprehension pertains to inquiring about the book's content, directing attention to images that support vocabulary and story content, making personal connections, and answering the child's questions (DeBruin-Parecki, 2007). Using Literacy Strategies requires the parent to connect picture clues to the story, request the child to make predictions, retell the story's events, and expand on the child's ideas (DeBruin-Parecki, 2007). Correlating behaviors for the child refer to initiations and responses to the parent's solicitations. Comparisons of the actual tallies for observed behaviors in these areas are provided to offer evidence that demonstrates a more accurate perspective of interactive behavioral changes between pre- baseline and post-intervention sessions than the 0-3 scoring guide. The researcher and one research assistant collected these data. Each interactive behavior observed in the two videotaped shared electronic book reading sessions was analyzed independently and followed by point-by-point consensus.

Table 13 presents the parent-child dyads' total interactive responses based on the tallies from the Promoting Interactive Reading and Supporting Comprehension and Using Literacy Strategies components of the ACIRI.

Table 13.

Tallied Results for ACIRI's Promoting Interactive Reading and Using Literacy Strategies Components

	Parent Promoting Interactive Reading		Parent Using Literacy Strategies		Child Promoting Interactive Reading		Child Using Literacy Strategies	
	Pre-	Post	Pre-	Post	Pre-	Post	Pre-	Post
<i>Tallied Responses</i>								
Parent-child 1	3	10	0	31	1	17	3	15
Parent-child 2	7	11	1	3	8	14	4	5
Parent-child 3	0	16	1	8	0	14	2	9
Parent-child 4	3	17	3	22	6	17	2	21
<i>Total Means for Responses</i>								
	3.25	13.50	1.25	16.0	3.75	15.50	2.75	12.50
<i>Total responses for Combined Categories</i>								
	Parent				Child			
	Pre-	Post			Pre-	Post		
Parent-child 1	3	41			4	32		
Parent-child 2	8	14			12	19		
Parent-child 3	1	24			2	23		
Parent-child 4	6	39			8	38		
Mean	4.50	29.5			6.50	28.00		
<i>Percentage Increase for Total Responses</i>								
Parent-child 1		1,267%				700%		
Parent-child 2		75%				58%		
Parent-child 3		2,300%				1,050%		
Parent-child 4		550%				375%		

Pre- and post-intervention means were calculated for the sum of the participants' responses in each component. Next, the numbers of pre-intervention and post-intervention responses for both components were totaled and a mean calculated. Finally, the percentages of increase from pre-intervention to post-intervention total responses are presented. Percentage of increase scores were calculated by subtracting the pre-intervention total score from the post-intervention total score, dividing the difference by the pre-intervention score, and multiplying by 100 to obtain a percentage.

Tallied responses for the parent participants indicate positive gains in interactive behaviors supportive of comprehension for all parent participants. Parent 3 demonstrated a 2,300% increase from pre-baseline to post-intervention. This gain was followed by a 1,266% increase for Parent 1, a 550% increase for Parent 4, and a 75% increase for Parent 2. Positive increases were found for the mean score (+25.00) and the percentage difference (556%) for interactive behaviors in the combined categories between pre-intervention and post-intervention.

Child participants' tallied responses also indicated growth in interactive behaviors during the electronic book shared reading process. Child 3 showed the greatest increase of 1,050% in the number of interactive behaviors displayed between pre-intervention and post-intervention. This positive gain was followed by a 700% increase for Child 1, 375% increase for Child 4, and a 58% increase for Child 2. Results from the combined categories demonstrated positive increases in the mean score (+21.50) and percentage difference of 331% between pre-intervention and post-intervention scores.

Summary: Based on analysis of the overall ACIRI scores and the tallied responses presented for pre-baseline and post-intervention, the results suggest that training parents to incorporate interactive questioning during shared electronic book reading has a positive effect on their future interactive reading behaviors.

Section 4

Implementation fidelity. In single-case research design, careful monitoring of the independent variable and research procedures is essential. Fidelity to the intervention protocol ensures reliability, consistency of treatment, and strengthens the conclusions drawn from the results (Kennedy, 2005). Several procedures were conducted to evaluate

implementation fidelity. The researcher's fidelity to the parent trainings was assessed by one research assistant. The first parent training was presented three times and the second training was presented individually to each of the parent participants by the researcher. PowerPoint presentations were used to provide uniformity of sequence and information. The team member observed two of the first parent trainings and reviewed one recorded version of the second parent training using the Parent Trainer Fidelity Checklists (see Appendix K). Twelve target training behaviors were included for the first training and seventeen behaviors for the second training. Overall results reflected 100% compliancy by the researcher with the training protocol.

The Fidelity for Administration of Comprehension Assessments

(see Appendix L) was used to measure the researcher's fidelity to the protocol for administering the comprehension questions and narrative retellings. Two research team members reviewed the administration of 20% of the assessments independently. Evidence of the fifteen target protocol behaviors was sought for each session. Inter-observer agreement was calculated using the interval agreement approach (Kennedy, 2005; O'Neil et al., 2011). The total number of agreements was divided by the total number of disagreements plus the agreements and multiplied by 100%. Inter-rater agreement was calculated at 99%. Fidelity to administration of the combined comprehension and narrative retelling protocols was calculated at 99% inter-rater agreement.

During the intervention phase, one shared book reading session was videotaped for analysis of parent fidelity to the written questioning protocol for the story. The researcher and one research assistant viewed the videotapes independently using the

Checklist for Parents' Fidelity to Intervention Protocol (see Appendix M) on a page-by-page basis. Employing the interval agreement approach, the inter-rater agreement was calculated at 93% and parent fidelity to the intervention protocol was 97%.

Reliability. Inter-rater reliability was conducted on the data collected from comprehension questions and story retellings to assure consistency in scoring, reliability, and the use of the measurement system. The researcher and one research team member scored the eight comprehension questions that followed electronic book readings. Prior to scoring each assessment, the target story was read. Responses to the questions were recorded and written down on the Comprehension Assessment Scoring Form (Appendix C), which had the questioning protocol, and suggested answers for each question embedded in the form. The researcher to provide accuracy in interpretation transcribed the responses to the questions. Interval agreement or point-by-point agreement was used to calculate inter-rater agreement. Participant responses were initially scored independently by the researcher and one team member and then reviewed on a point-by-point basis. In occurrences in which there were rater disagreements, the story was reviewed; interpretations were discussed until a consensus was reached and the total score determined. Inter-rater agreement was calculated by dividing the number of agreements by the number of disagreements plus the number of agreements, and multiplying by 100 (Kennedy, 2005; O'Neill et al., 2011). Using this method, interrater agreement for the comprehension questions was originally calculated at 98% and 100% when consensus was established.

Interrater reliability for narrative retellings was conducted using point-by-point agreement, the procedure previously discussed. The researcher transcribed all audio-

recorded narrative retellings to assure accurate analysis. Due to extensive experience with scoring narrative retellings with rubrics, team member two assisted in analyzing the retellings. The researcher and team member were trained on the administration and scoring of the Narrative Scoring Scheme (Heilman et al., 2010) using SALT (2014) software. Prior to scoring each child participant's narrative, the story was read. Each scorer scored the retelling independently which was followed by point-by-point agreement for each of the seven categories included in the NSS. In cases of disagreement, criteria in the rubric were discussed in relation to the transcription and story events until consensus was reached. Interrater agreement for the narrative retelling was originally calculated at 89%, which resulted in 100% when consensus was established.

Pre- and post- intervention videotapes of the parent – child dyad's shared electronic book reading process were observed and scored by the researcher and research team member one using the Adult - Child Interactive Reading Inventory (ACIRI; DeBruin-Parecki, 2007). Both the researcher and research team member were trained in the scoring process prior to this study. In addition to the prescribed scoring procedures of the ACIRI, a total frequency count of the parent-child interactive behaviors supplemented the data analysis. Agreement was determined by using a point-by- point analysis. The researcher and one research team member simultaneously viewed each videotape. The videotape was paused after each interaction in order to categorize and record the behavior. Following each recorded behavior, the chosen category was discussed and justified.

Agreement was based on the labeling of the interactive behaviors in one of the three categories (Enhancing Attention to Text, Promoting Interactive Reading and Supporting Comprehension, and Using Literacy Strategies) for both the parent and child. Each category was divided into four specific behaviors which could potentially earn twelve points per category and 36 points for a total score for which the mean was calculated. In cases of disagreement, the videotape was reviewed and the *Let's Read Together* (DeBruin-Parecki, 2007) examiner's manual was consulted to validate the selected category for the targeted behavior. This procedure provided an accurate interpretation of the data at each occurrence. Inter-rater reliability was conducted by calculating the total number of specific behaviors in which agreement was reached by the number of the agreements plus the number of disagreements. The results of initial inter-observer agreement were 80% and after point-by-point consensus 100%, agreement was established.

Social validity. Social validity of the research study was conducted in an effort to determine the parents' satisfaction and effectiveness with the intervention training (Kennedy, 2005; O'Neill et al., 2011). Following the final shared electronic book reading session in the maintenance phase, each parent was requested to complete The Parent Satisfaction Survey (Appendix J). Six quantitative items were measured on a five-point Likert scale (1 = Strongly Disagree, 2 = Disagree Somewhat, 3 = Neutral, 4 = Agree Somewhat, 5 = Strongly Agree). Parents were instructed to rate their satisfaction in the following areas: (1) expansion of knowledge regarding comprehension development, (2) experience with integrating electronic features to the story text, (3) increased confidence when reading e-books, (4) change in levels of interaction during the

shared electronic reading book process, (5) increased confidence in the utilizing multi-level questioning skills, and (6) value of intervention for parents. Three open-ended questions also offered the parent the opportunity to provide feedback to the researcher about parental perspective changes, if any, regarding electronic books, and suggestions for modification to the intervention. The last item on the questionnaire included a request for further parental comments. Table 14 presents the results of the Parent Satisfaction Survey.

Table 14.

Results of the Parent Satisfaction Survey

Questionnaire Item	Parent Response
1. I expanded my knowledge regarding reading strategies that will support my child's comprehension development.	Strongly Agree = 5
2. I gained valuable experience with integrating electronic features to the storyline during story discussions.	Strongly Agree = 5
3. I feel confident that I am able to use the strategies learned in the intervention when I read electronic books with my children in the future.	Strongly Agree = 5
4. I am able to see a positive change in the level of interaction experienced during shared book reading sessions.	Strongly Agree = 5
5. I have confidence in developing and integrating multi-level questions during shared book reading.	Strongly Agree = 5
6. I would recommend this interactive intervention to parents interested in increasing their child's (4- 5 years old) comprehension skills when reading electronic books.	Strongly Agree = 5

Parent Satisfaction Survey ratings and comments indicated a high level of parent satisfaction, regarding the intervention training and shared electronic book reading

experience. Survey results indicate that parent participants strongly agreed with the questionnaire items ($M = 5.00$). Parents recommended that other parents receive the benefit of supporting their children's comprehension development through this intervention. Parent responses to the open-ended questions stated that their future electronic book shared reading sessions would become more interactive from incorporating questioning strategies, than prior to the intervention. The qualitative data collected from the Parent Satisfaction Survey is located in Appendix N.

CHAPTER 5

DISCUSSION

Introduction

The purpose of this study was to investigate the effects of interactive questioning during parental shared electronic book reading on children's comprehension scores and the impact of an interactive questioning intervention on subsequent parental questioning behaviors. Analysis of the data presented in Chapter 4 revealed that the level of intervention effectiveness on comprehension skills and interactive behaviors during shared electronic book reading differed among the children. Additional findings suggest that parental shared electronic reading practices may also be positively impacted by training and practice. This chapter contains a discussion of the findings for each research question, disclosure of the limitations that were inherent within the study and implications for future research and shared reading practices when using electronic books.

Study Overview

This study was grounded in Vygotsky's sociocultural cognitive theory and the concept of scaffolding a child's zone of proximal development through interaction with a more knowledgeable person (Vygotsky, 1978). Vygotsky's theoretical understandings are realized in this study through the foundational emphasis on the parents' interactive role in scaffolding children's cognitive development. Comprehension, the targeted skill in this study, is a lifelong and complex skill that entails constructing meaning from language and text (Dooley & Matthews, 2009). During the early childhood years, comprehension can be fostered by an adult's interactive discussion during the shared

book reading. Keeping in mind the growing influence of digital text and electronic books in schools and at home today, this study sought to explore the use of interactive questioning by parents as a scaffold for comprehension development during electronic shared book reading.

Two major questions guided this study: (1) In what ways does an adult interactive questioning intervention during joint reading of electronic books impact preschool students' comprehension scores? (2) What are the effects, if any, of training parents to implement questioning strategies during joint-electronic book reading on subsequent parental behaviors during shared electronic book reading? In order to address these research questions, single-case research design (SCR) was selected as the methodological approach.

SCR has shown to be particularly compatible and relevant in behavioral research within school settings (Kennedy, 2005; O'Neill et al., 2011). In this study, systematic replications of the intervention protocol provided data for an in-depth analyses in an effort to establish the existence of a functional relationship between the dependent variable (comprehension scores) and the independent variable (interactive questioning during electronic book shared reading). One of two parent trainings entailed an introduction to research-based strategies that have shown to enhance comprehension development when reading print text and the inclusion of a text reference when transitioning from interactive features to the story text. The questioning protocols for the selected electronic books used during the six intervention sessions provided parents reinforcement and practice with the targeted strategies. The Early Literacy Skills Inventory (ELSA) (DeBruin-Parecki, 2005), researcher-developed comprehension

questions, and narrative retellings assessed the four preschool participants' literacy and comprehensions skills. In addition, parent-child interactive questioning practices during electronic shared book reading were measured pre- and post-intervention with the Adult-Child Interactive Reading Inventory (De-Bruin-Parecki, 2007). Parent feedback was solicited at the culmination of the study to determine the social validity of the intervention experience. Discussion of the results for each research question follows.

Discussion of Study Findings

Research Question 1: In what ways does an adult interactive questioning intervention during joint reading of electronic books impact preschool students' comprehension scores?

The results of this study suggest that incorporating interactive questioning skills during shared electronic book reading supports preschoolers' comprehension development. In this study, multiple assessments were administered to provide a broader perspective of the child participants' comprehension skills in accordance with Paris & Paris' (2003) and Skarakis-Doyle & Dempsey's (2008) recommendations. The three comprehension assessments administered were (1) Early Literacy Skills Assessment (ELSA), (2) researcher-developed comprehension questions, and (3) narrative retellings of the text by the child participants.

The ELSA was administered pre-intervention to evaluate overall emergent literacy skills (comprehension, concepts about print, phonological awareness, and alphabetic principle). Korat (2010) also recommended obtaining preliminary literacy scores to better assess gains from an intervention that was conducted to determine the effects of independent e-book reading. While the entire ELSA assessment was

administered, this study primarily focused on the results of the comprehension component. The initial comprehension scores collected provided a foundation from which the gains from the intervention could be determined (Korat, 2010). Two of the child participants (Child 1 and Child 2) increased one literacy level from the early emergent to the emergent developmental level. Participant 4's, (the oldest of the participants), unpredicted increase of two literacy levels may also imply that the basic comprehension skills (predicting, retelling, and connecting to life) assessed were more easily attained at an older age level when experienced in conjunction with the interactive questioning during the intervention. Participant 3's lack of literacy level change may have been affected by the short duration between pre- and post-assessment and familiarity with the story. However, three of the child participants demonstrated strong gains in comprehension during the short seven-week duration of this study.

The positive impact of this intervention was most notable in the area of comprehension questions. The four participants when reading the electronic story with a parent as compared to reading it independently demonstrated a total mean increase of 213%. The range of percentage increase showed a broad variation in improvement (13% - 466%). Participant 4's modest increase of 13% contrasted to the remaining participants increases of 62%, 311%, and 466%. This may be attributed to the relatively high scores he obtained during the baseline phase that allotted for minimal growth on the assessment with a total possible score of ten points. When analyzing the fluctuating pattern of the comprehension question scores, the researcher speculated if a participant's preference for one book series affected the participant's overall engagement and story recall. For example, the children's interest since the e-books from each series were alternated from

baseline to maintenance phases. For example the children may have been more entertained by Fly Guy's adventures than Clifford's. Nevertheless, the commercial e-books incorporated in this study offered numerous storylines in contrast to other larger group electronic book studies in which one electronic book (Korat, 2010; Korat & Shamir, 2012) or a researcher developed considerate e-book was used (Korat & Shamir, 2007, 2008; Shamir, 2009). Future studies that investigate the use of interactive questioning during electronic book reading by employing multiple books could explore the availability of a single author's series or several e-books by various authors.

Although not a targeted focus in this study, the data that relates to variations in correct responses to literal, inference, and vocabulary questions suggests that further investigation into this topic is warranted. Prior discussion in the literature review, affirmed the importance of vocabulary development (Biemiller, 2006) and inference making to support comprehension development and construct story retellings with causal connections (Kendou et al., 2005). In accordance with Van Kleeck's (2008) recommendations for book-sharing interventions, the intervention protocol in this study provided multiple opportunities for the parent to scaffold increased story understanding through interactive questioning using literal and inferential prompts. Parents also explained unfamiliar words using the questioning protocol during shared electronic book reading sessions. The percentage changes for correct responses to different types of comprehension question scores revealed wide variations which provides incentive to investigate if the type of intervention utilized in this study has the potential to enhance the frequency of correct responses by question type or if future modifications are needed.

Story retellings were the third measure to assess the effects of interactive questioning on comprehension skills. The use of the Narrative Scoring Scheme as a rubric for the preschool retellings was original to this study. The seven defined retelling characteristics provided a framework that enabled the researcher and research assistant to analyze the transcripts quantitatively and identify individual strengths and weaknesses for each child participant. This type of analysis provided essential information regarding story understanding and could serve as a foundation for future scaffolding in the targeted areas by parents or teachers.

Results demonstrating increases in scores for the narrative retellings were modest for child participants 1, 2, and 3 as compared to the results for the comprehension questions. However, the 48% increase for Child 4 in retelling may imply that withstanding the age factor and established competency with comprehension questions, the opportunity to further expand retelling skills was enhanced by the interactive questioning and retelling prompts that were incorporated throughout the story. These results lend support to Kang, Kim, and Pan's (2009) preliminary findings that revealed parental engagement through open-ended prompts and communicative scaffolding during shared print book reading was a predictive factor for retelling skills. Consequently, the gains in the retelling scores for all the participants, further supports the use of interactive questioning to scaffold comprehension skills during shared electronic book reading.

Research Question 2: What are the effects, if any, of training parents to implement questioning strategies during joint-electronic book reading on subsequent parental behaviors during shared electronic book reading?

Research investigating parent support during electronic book reading is in its early stages. This study endeavored to impact parent interactive behavior through one parent training session that focused on research-based strategies and a series of six sessions that provided the parent with scripted questioning protocols that were aligned with the story. During the intervention sessions, parents had the opportunity to preview the e-book and questioning protocol before the shared reading sessions. This procedure, as well as practicing interactive questioning skills multiple times worked to reinforce the targeted strategies during shared e-book reading sessions. The procedure in the current study differs from Korat et al.'s (2013) weekly-facilitated trainings in which parents were given suggestions regarding literacy support and instructed to read the electronic book five times during the course of a week. The questioning protocol that aligned with each book in this study was also more structured than the provision of question starters commonly used in dialogic reading (Whitehurst et al., 1988).

The ACIRI was used to assess the pre- and post-intervention videotaped observations of two shared electronic book reading sessions for each parent-child dyad. The interactive behaviors observed for the parent and child were categorized and tallied separately by the researcher and research assistant. Quantitative results of these observations demonstrated changes in interactive behaviors for both the parents and children in varying degrees across the three categories: (1) Enhancing Attention to Text, (2) Promoting Interactive Reading and Supporting Comprehension, and (3) Using Literacy Strategies. The data that was obtained from combining the number and type of interactions for Promoting Reading and Supporting Comprehension and Using Literacy Strategies presented a more accurate perspective than the instrument's original scoring

guide of the actual change in frequency that transpired from the onset of the intervention to the culmination.

Positive increases in tallied interactive behaviors that support comprehension frequency for parents demonstrated a mean increase from 4.5 interactive behaviors to a post-intervention mean of 29.5 (556% increase). While this study did not seek to explore causal links between parent increase in interactive behaviors and child interactive behaviors, the children's increase (331%) should be viewed in conjunction with the influence of the parent training and six practice sessions during the intervention.

Investigating the impact of the electronic features on comprehension was beyond the scope of this study. As previously discussed, interactive features can be perceived as a distraction and potential threat to comprehension when they are not aligned with the story structure (Zucker et al., 2009). However, it was noted that the commercial electronic books used in this study offered interactive activities that supported early literacy skills. Observations of the videotapes disclosed that on the two occasions recorded, the parent managed the duration of time spent responding to the prompts. Parent 2 and Child 2 appeared to take full advantage of the unlimited time and electronic features. In contrast, Child 4 was initially more interested in the storyline and narration. The questioning protocol in this study included verbal prompts that reconnected the child's attention to the storyline after accessing interactive features. Further research is recommended to investigate if these types of prompts promote story recall and comprehension skills when reading electronic books.

Limitations

When contemplating results, an examination of the limitations inherent to the study's design is essential. One limitation that needs to be considered is the small convenience sample ($N = 4$) which was recruited from a predominantly Caucasian middle class preschool. This small homogeneous sample size limits generalization to other socioeconomically and ethnically diverse populations. However, this study's single case research design provided a systematic analysis of each participant's behavioral outcomes using the participant as his or her own control. Performance was measured repetitively across phases in order to determine if a functional relationship existed between the independent and dependent variables in contrast to larger group designs, which focus on statistical analysis of total group scores (O'Neill et al., 2011). Results from this study warrant future investigations using larger group experimental designs.

Other limitations take into consideration the participants' young age regarding formal assessments, level of effort, participation, and interest in the story. Prior exposure to the electronic book stories in the preschool setting was addressed by ensuring that the stories selected for the study were not in the electronic book or print text collection in the preschool's media center. However, one story series or main character may have captured the participant's interest more than the other series. This may have resulted in a more accurate recall of story events and characters as well as greater attention to the assessment protocol. It is unknown if the collection of baseline data, the phase in which the child participants read the electronic book independently, may have been affected by story preference or by additional experience with answering questions and retelling for the two participants who had four baseline sessions.

Another limitation that cautions interpretation of results is the one-week interval between the last intervention session and maintenance phase (ACIRI). While this time frame was relatively brief, the results demonstrated that parent training could impact interactive behaviors as a result of a short term intervention. Future investigations that increase the interval between the intervention and maintenance phases have the potential to determine the potential longevity of the targeted interactive questioning skills. In addition, parents home shared book reading practices were encouraged, but not formally documented or monitored in the scope of this study. Consequently, parents may not have been motivated to reinforce comprehension skills and practice the strategies at home. The written protocol for each intervention session provided practice with the six skills targeted in this study to counteract the possibility of parents not practicing the skills when only one training was implemented. Future research could be designed to incorporate a greater home connection through daily logs or videotaped sessions. Limitations that may have originated from the parents' inability to fulfill scheduled sessions due to unexpected events such as illnesses, scheduled appointments, or family matters were addressed by taking advantage of the designated make-up days that maintained the protocol sequence.

Implications for Current Practice

The findings of this study provide support for the utility of an intervention that trains parents or teachers working with young children to incorporate interactive reading strategies during shared electronic book reading in an effort to enhance comprehension development. Results also align with a body prior research with print text that establishes the importance of parental support and interactive questioning during shared book reading (Mol, Bus, De Jong, & Smeets, 2008; Swanson et al., 2011; Whitehurst et al.,

1988). Thus, with the growing use of electronic books in the classroom and at home, the implications of this study take into consideration the growing need to not only identify best practices when reading e-books during shared book reading, but also the means to provide greater access to electronic books at the preschool level. Both considerations are especially relevant when seeking ways to support low-socioeconomic preschool children who may not have acquired the necessary literacy skills that are necessary for future reading achievement.

To ensure literacy and technology readiness at the time of kindergarten enrollment, programs need to be developed and financed by stakeholders in early childhood education that train families, preschool caregivers, and teachers to incorporate quality e-books in their literacy programs and practices. If preschool centers served as a bridge between teachers and parents, methods that expand electronic book reading beyond an independent reading experience to one that includes scaffolding comprehension skills through interactive questioning could be introduced and reinforced.

Parents with training in interactive questioning skills have the potential of being an invaluable resource to their children as well as volunteers within a school setting. The provision of electronic book readers may be a motivating factor for increased parental involvement and student emergent literacy skills development especially in low socioeconomic populations. Greater access to e-books would allow the child to read the book multiple times subsequent to the initial reading with parental involvement. Programs of this type may also help minimize the gap in technology experience of low socioeconomic students when entering formal kindergarten.

The current study also points to the effectiveness of a short-term intervention in which the parental training is delivered and reinforced in two components. Parents' dialogic reading behaviors have shown to change as a result of training and sustain up to two years (Huebner & Payne, 2010). In this study, parents were trained using a standard PowerPoint presentation format and then provided scripts of questions to accompany the different books for six reading sessions. This method controlled the frequency and types of interactive questions as well as ensured parental practice of the skills. Further implications suggest that this procedure can be easily modified and adapted to diverse age groups, settings, and electronic books.

The intervention in this study could be adapted to train preschool and regular education teachers about the importance of interactive questioning during electronic book reading. It would also provide them the opportunity to practice with questioning protocols that accompany class read alouds. This procedure has the potential to expand their higher level questioning skills, which has the potential to influence their students' comprehension development. The need to train teachers to increase the complexity of their questioning skills is supported by former research that found preschool teachers often neglected to include inference questions in favor of literal questions (Scheiner & Gorsetman, 2009). Therefore, future research is recommended to investigate the effects of an intervention such as the one in this study on teacher interactive questioning skills and students' comprehension outcomes.

Implications of this study also relate to electronic book development and production. The e-books selected for this study incorporated interactive features that supported comprehension and early literacy skills. As research in this field continues to

expand, researcher's findings and recommendations should underpin decisions made regarding the types of interactive features included in the story. Future packaging might include tips for parents, generic question prompts, and designate if the e-book is designed purely for entertainment, educational purposes, or both. A universal rating system that includes criteria as outlined by Shamir and Korat (2006) would inform consumers of the e-book's utility as a literacy support, thereby promoting intentional purchase selections. This system would also provide program developers and funders with the information to make optimal and appropriate choices to meet program needs.

Implications for Further Research

This study contributes to the growing body of research regarding the utility electronic books for emergent literacy skill development. It provided a preliminary perspective on the effects of interactive questioning on preschoolers' comprehension skills during electronic book reading and the viability of a parent intervention to impact parent interactive shared reading practices. Future large-scale group investigations are recommended to validate strategies that enhance comprehension skills during shared electronic book reading. The researcher recommends systematic replications (Kennedy, 2005) of this study that seek to establish generality of results and determine the boundary conditions of the functional relationship. The independent variable may be modified by varying the number, types, and frequency of questions as well as parent training format and intervention protocol. Decisions regarding future replications may also target populations that are representative of different ages, genders, socioeconomic status, settings, and ability levels.

Future research is also suggested that entails modifications to the current single case research design. This would include increasing the duration of the study and the number and frequency of baseline and intervention sessions to provide more data for analysis. A greater time span than one week between the final intervention session and the monitor phase would strengthen the validity of the results regarding the sustainability of the interactive questioning practices over time. In addition, a more in-depth assessment of fidelity to the intervention protocol could be achieved by videotaping and monitoring each session. Additional videotapes would also offer information regarding child compliance, access of interactive features, and parent-child interactive behaviors were accessed.

One of the benefits of e-books is the opportunity for the child to read the book multiple times independently. Repeated e-book readings have shown to enhance literacy skills (Korat & Blau, 2010; Korat & Shamir, 2007; Verhallen & Bus, 2010). Therefore, future research that incorporates repetition in conjunction with shared electronic book reading and interactive questioning is recommended to determine best practices for comprehension skill development. Additional research that addresses the debate regarding the influence of interactive features on comprehensions skills would also extend this study. While participants were permitted to access interactive features in all phases of the study, methodology that incorporates interactive questioning with protocols that allow or deny experimental groups access to features may offer additional insight into the effect of features on comprehension.

Conclusions

This study examined the effects of incorporating interactive questioning during electronic shared book reading on normally developing preschoolers' comprehension skills and whether parents would implement interactive reading in subsequent shared electronic book reading sessions post-intervention. This study expanded the research base focusing on the utility of electronic books and parental support to influence comprehension skill development in preschool children. To the researcher's knowledge, features original to this study were the utilization of single case research design and the methodology that included incorporating multiple electronic books from two series in conjunction with training parents to scaffold comprehension skills. During the intervention phase, parents implemented specific questioning protocols, which also provided opportunities to reconnect the children's attention to the story line following access to interactive features.

Data collected that compared independent reading of electronic books with sessions that incorporated parental support with fidelity to an interactive questioning protocol indicated that the child participants made gains in comprehension skills as measured by the ELSA, comprehension questions, and narrative story retellings. In addition, analysis of the pre- and post-intervention videotapes (ACIRI) revealed that all parents demonstrated gains in the frequency of interactive behaviors incorporated during the shared electronic book reading session and provided feedback that suggested continue use of the strategies. This study provides evidence that demonstrates the need to expand the research base by further investigating parents as trainable resources who can successfully scaffold preschoolers' literacy and comprehension skills while expanding

levels of personal connection and story understanding during the shared electronic book reading experience.

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APPENDIX A

PARENT RECRUITMENT LETTER

Date:

Dear Parent(s) or Guardian,

My name is Lynda Salmon and I am doctoral student at Old Dominion University. To meet the Ph.D. degree requirements, I am conducting an original research study that will be investigating electronic books as a support for literacy development. *Site director* of *preschool center* has graciously agreed to host this research. The research study will be conducted from *dates*.

I am seeking parents and children between the ages of four and five years old to participate for seven weeks. I am inviting you to consider participating with your child. The purpose of this letter is to provide you with information that will assist you in this decision.

If you and your child choose to volunteer, participation will include:

- eight videotaped recordings of you and your child reading electronic books (approximately 45 minutes each)
- two to four sessions in which your child will read an electronic book independently
- two parent meetings with the researcher: (1) informational for approximately 15 minutes and (2) literacy strategy and protocol training for approximately 30 minutes.

If you choose to participate in this study, I will provide training that explains all procedures and expectations. All information and data collected will be held confidential and secured in a password locked computer and locked file cabinet in my office. I will make every effort to accommodate your schedule during the study timeline framework. At the culmination of the study and analysis, I will be happy to discuss the results with you.

I appreciate your consideration and look forward to addressing any questions or concerns you may have about participating. You can contact me at lyndagail@cox.net or my dissertation committee chairperson, Dr. Angela Eckhoff at aekhoff@odu.edu, 757-683-6263. Please fill out the attached form if you are interested in volunteering so that I can contact you with further details regarding your participation.

Thank you for your time and consideration.

Best regards,
Ms. Lynda Salmon, M.S.
Old Dominion University

APPENDIX B

PARENT INFORMATION FORM

Name of child _____ Date of birth _____

Ethnicity _____

Parent's/ Guardian's name _____ Age _____

Marital Status _____ Relationship to child _____

Parent's highest level of education completed _____ Employment _____

Residential members in the family

Does your child have any of the following?

____ language delay ____ physical handicap ____ cognitive delay

____ vision or hearing impairment ____ Other (specify) _____

Contact information: Email address _____

Home phone: _____ Cell phone _____

Availability during the working hours of (7:00 a.m. to 6:00 p.m.)

Days of the week _____ Hours _____

*Electronic books include all books that are read digitally on a screen.

1. Does your child read electronic books at home? If so, on what device(s)?
_____2. In the past two weeks, how often did you read **print** text with your child?

____ Not at all ____ 1 time a week ____ 2-3 times a week ____ More than 3 times per week

3. In the past two weeks, how often did you read **electronic books** with your child?

____ Not at all ____ 1 time a week ____ 2-3 times a week ____ More than 3 times per week

4. In the past two weeks, how often did your child read (view) **print text** independently?
___ Not at all ___ 1 time a week ___ 2-3 times a week ___ More than 3 times per week

5. In the past two weeks, how often did your child read (view) **electronic books** independently?
___ Not at all ___ 1 time a week ___ 2-3 times a week ___ More than 3 times per week

6. In what ways does the book format influence your interaction with your child during reading?

7. What influences the purchase of specific electronic books for your child?

8. Describe a typical shared electronic book reading session with your child.

9. Please provide additional comments or information that would be pertinent to this study.

Thank you for volunteering for this research study.
You and your child's participation will play an
important role in future literacy support.

APPENDIX C

COMPREHENSION ASSESSMENT AND SCORING FORMS

Participant's number _____ Date _____ Time: _____ Total Score _____/10

Electronic Book: Bridwell, N. (2002). *Clifford Goes to Dog School*. New York: Scholastic Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____
Hi! How are you today? What did you like about *Clifford's Goes to Dog School*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Emily Elizabeth's Auntie was trying to train Clifford.		
2. What tricks can Clifford do with Emily Elizabeth? Can you tell me more?	1	Clifford can beg, shake hands, and play dead.		*
3. Auntie wanted Clifford to heel. What does it mean to heel?	3	The dog has to walk next to someone/its owner on the leash.		
4. What problems did Auntie have with the leash getting Clifford to heel?	2	When the leash was too short, Auntie was pulled off the ground. When it was too long, she got all tangled up in it.		
5. What did Clifford do that surprised the man reading the newspaper?	1	He sat down on him.		
6. Emily Elizabeth went to Auntie's house to learn more about dog training. How did she learn more?	1	She read books about dog training that her Auntie gave her.		
7. Why didn't Clifford eat the dog food, or play with the dogs and cats?	1	He was told to stay.		
8. What would have happened if Clifford did not save Emily Elizabeth?	2	A car would have hit her.		

Comments:

Comprehension Assessment and Scoring Form
(Pre-intervention ACIRI)

Participant's number _____ Date _____ Time: _____ Total Score _____/10

Electronic Book: Arnold, T. (2006). *Super Fly Guy*. New York: Scholastic Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____.
Hi! How are you today? What did you like about *Super Fly Guy*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Fly Guy and the people who work in the school lunchroom.		
2. What things in the lunchroom did High Fly love? Can you tell me more?	1	He loved the mop, dirty dishes, and garbage cans.		*
3. Who was Roz?	1	She was the lady who worked in the lunchroom. She was the cook.		
4. Did Roz like Fly Guy? How do you know?	2	She gave him food.		
5. Roz's boss fired her. What does it mean to get fired?	3	She could not work anymore. She lost her job.		
6. Why didn't the children like Miss Muzzle?	1	She burnt the food.		
7. The boss also fired Miss Muzzle. What did she do to get fired?	2	She made a mess when she was trying to get rid of Fly Guy.		
8. What happened at the end of the story?	1	Roz came back and everyone was happy.		

Comments:

Comprehension Assessment and Scoring Form (Baseline 1)

Participant's number _____ Date _____ Time: _____ Total Score _____/10

Electronic Book: Bridwell, N. (1984). *Clifford's Family*. New York: Scholastic Inc.**Protocol:** Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____.

Hi! How are you today? What did you like about **Clifford's Family**? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me. If you don't understand a question or would like it repeated again, please tell me."**To the assessor:** Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.**Scoring:** 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Fly Guy and the people who work in the school lunchroom.		
2. Where did Emily Elizabeth used to live?	1	They lived in the city.		
3. How do you think Clifford feels when his mother treats him like a puppy?	2	Any logical response that is justified.		
4. Bonnie, Clifford's sister lives in the country. What is it like to live in the country?	3	Any description that relates to lots of land, farmland, etc.		
5. Clifford's brother and sisters help their owners. Tell me some of the ways that they help their owners.	1	Claudia is a seeing high eye dog and helps her cross streets and walk safely. Bonnie herds sheep. Nero is a firehouse dog and goes to fires.		*
6. Clifford helped his brother Nero and sister Claudia when they were doing their jobs. Tell me one way Clifford helped.	1	Claudia: He picked up the taxi so she could cross the street. Nero: He let the people in the burning building climb down his back to get out safely.		
7. What did Clifford wish?	1	Clifford wished that his family could live with Emily Elizabeth and him.		
8. Why might it be a problem for Clifford to live the big city?	2	He is too big. Logical responses pertaining to problems instances are acceptable.		

Comments:

Comprehension Assessment and Scoring Form (Baseline 2)

Participant's number _____ Date _____ Time: _____ Total Score _____/10

Electronic Book: Arnold, T. (2002). *Fly Guy Meets Fly Girl*. New York: Scholastic Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____.
Hi! How are you today? What did you like about *Fly Guy Meets Fly Girl*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me. If you don't understand a question or would like it repeated again, please tell me."

To the assessor: Questions may be asked twice. Use the Elicitation Protocol for Narrative Retelling for the second assessment. Be sure to record both assessments.

Scoring: Award 1 point for each question answered correctly.

The open-ended question (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Score
1. What was the story about?	2	Fly Guy and Buzz make friends with Liz and Fly Girl.		
2. What does bored mean?	3	When you don't have anything to do or are not interested in what you are doing.		
3. What did Fly Guy and Buzz do to have fun? Can you tell me more?	1	Went for a walk, played chase, and cooled off in a fountain.		*
4. Where did Fly Guy and Buzz meet Fly Girl and Liz?	1	At the park, near the fountain or swings		
5. What are some things that Fly Girl and Fly Guy can both do?	1	Eat gross stuff, do tricks, say their owner's name.		
6. What does Buzz ask Liz to do?		Play on the swings		
7. What did Fly Guy and Fly Girl start thinking about while they were talking?	2	Getting married, having a family, leaving Buzz and Liz		
8. Why did Fly Girl and Fly Guy change their minds about getting married?	2	They did not want to leave Liz and Buzz.		

Comments:

Comprehension Assessment and Scoring (Baseline 3)

Participant's number _____ Date _____ Time: _____ Total Score ____/10

Electronic Book: Bridwell, N. (1988). *Clifford Takes a Trip*. New York: Scholastic Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess,

"Participant number _____ Date _____ Book title _____.
Hi! How are you today? What did you like about **Clifford Takes a Trip**? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Clifford tries to get to his family who was on vacation.		
2. Why can't Clifford go on vacation with the family?	1	He is too big. He cannot get on a train or bus. The vacation spot is too far for him to walk. Mommy and Daddy said he could not go.		
3. How do you think Clifford felt about being left home? How do you know?	2	He felt lonely and sad. He howled and cried.		
4. Why couldn't Clifford walk across the toll bridge?	3	He did not have money.		
5. Who did Clifford help in the story? Who else?	1	He helped a little old man (truck driver), Emily Elizabeth, and the two bear cubs.		*
6. Where was the family taking their vacation?	1	They went camping in the mountains.		
7. What danger was Emily Elizabeth in when Clifford found her?	1	Mama Bear was holding her.		
8. Why does Emily Elizabeth think Clifford might be able to go on vacation next year?	2	She hopes Clifford can go on vacation.		

Comments:

Comprehension Assessment and Scoring Form (Baseline 4)

Participant's number _____ Date _____ Time: _____ Total Score ____/10

Electronic Book: Arnold, T. (2007). *There was an Old Lady Who Swallowed Fly Guy*. New York: Scholastic Books.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____
Hi! How are you today? What did you like about **There was an Old Lady Who Swallowed Spy Guy**? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me. If you don't understand a question or would like it repeated again, please tell me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: Award 1 point for each question answered correctly.

The open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	It is about what happened to Fly Guy when Grandma swallowed him or when he visited Grandma.		
2. Who was Fly Guy's owner?	1	Buzz		
3. Where did grandma live?	2	On a farm		
4. How did Grandma show how she felt when Buzz came to visit?	1	Ran and hugged him.		
5. The word <i>Glurk</i> is used in the story. What does GLURK mean?	3	Swallow		
6. What were some of the things that Grandma swallowed?	1	Spider, bird, cat, dog, goat, cow		*
7. Why did Grandma swallow so many things?	2	She wanted each critter (creature, animal, thing) to catch what Grandma swallowed before it.		
8. What saved Fly Guy?	1	When Buzz called him, Fly Guy could see him. Fly Guy flew towards him.		

Comments:

Comprehension Assessment and Scoring Form (Intervention 1)

Participant's number _____ Date _____ Time: _____ Total Score ____/10

Electronic Book: Bridwell, N. (1985). *Clifford's Good Deeds*. New York: Scholastic, Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____.
Hi! How are you today? What did you like about *Clifford's Good Deeds*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Clifford trying to help people.		
2. What is a good deed?	3	Something someone does to help someone; an example of a good deed		
3. Who is Emily Elizabeth?	1	Clifford's owner/friend		
4. When something is stuck in a tree, people sometimes get a ladder to get it down. How did Clifford get the kitten down from the tree?	1	He pulled down on a branch and the kitten went flying. He caught the kitten and brought it back to the lady.		
5. How did Clifford take the car to the garage to be fixed?	1	He carried it in his mouth.		
6. Sometimes, Clifford made mistakes when he was trying to help. What was one of his mistakes?	2	Got paint on the house, broke a window, blew all the leaves out of the truck; pulled the cable and men out of the manhole.		
7. What were some of Clifford's good deeds? Can you tell me more?	1	He helped the kitten get down from the tree, put out a fire, and took the car to the garage		*
8. Do you think other people thought Clifford was good at doing good deeds? How do you know?	2	He got a medal.		

Comments:

Comprehension Assessment and Scoring Form (Intervention 2)

Participant's number _____ Date _____ Time: _____ Total Score _____/10

Electronic Book: Arnold, T. (2009). *I Spy, Fly Guy*. New York: Scholastic Books.**Protocol:** Please set up the audio-recorder prior to assessing the child. Record this each time you assess,

"Participant number _____ Date _____ Book title _____
 Hi! How are you today? What did you like about *I Spy, Fly Guy*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Buzz and Fly Guy playing hide and seek. Buzz could not find Fly Guy at the dump.		
2. What game did Buzz and Fly Guy play.	1	Hide and Seek; I Spy		
3. Why did Fly Guy like hiding in the garbage can?	1	He liked to eat.		
4. What happened to Fly Guy when he was in the garbage can?	1	He was thrown into the garbage truck.		
5. Do you think hiding in a trashcan is a good place for Fly Guy to hide?	2	Justify answer		
6. What is a dump? What can you find there?	3	A place where people put their trash or things they do not want any more (garbage, old tires, old stoves etc.)		
7. What were some of the problems Buzz had finding Fly Guy at the dump?	1	There were lots (zillions) of flies. All the flies could say his name. One fly boinked him on the nose. One fly bit him. They flew away.		*
8. How would Buzz have felt if Dad told him it was time to go home before he spied Fly Guy? Why?	2	Upset, sad. Justify.		

Comments:

Comprehension Assessment and Scoring Form (Intervention 3)

Participant's number _____ Date _____ Time: _____ Total Score ____/10

Electronic Book: Bridwell, T. (1988). *Clifford's Birthday Party*. New York: Scholastic Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess,

"Participant number _____ Date _____ Book title _____.
Hi! How are you today? What did you like about *Clifford's Birthday Party*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Clifford's birthday party		
2. Why weren't Clifford's friends at the party when it was supposed to start?	1	They did not think they had good presents for Clifford.		
3. What were some of the presents that Clifford got for his birthday? Can you tell me more?	1	Clifford got a big ball, a piñata, a small sweater/jacket, a gift certificate, and a talking dog.		*
4. Sam and Lenny gave Clifford a piñata for his birthday. What is a piñata?	3	A decorated animal that is filled with candy and is broken with a stick at a party.		
5. Clifford thought the talking dog was cute. What happened to it?	1	Clifford broke it when he tried to pet it.		
6. Did Emily Elizabeth want Clifford to have a new hairstyle? How do you know?	2	She gave the gift certificate away. She said that she liked Clifford the way he was.		
7. What surprised Clifford?	1	His family popped out of the cake.		
8. What made Clifford's birthday special?	2	He was with his family and friends.		

Comments:

Comprehension Assessment and Scoring Form (Intervention 4)

Participant's number _____ Date _____ Time: _____ Total Score ____/10

Electronic Book: Arnold, T. (2011). *Fly Guy vs. the Flyswatter*. New York: Scholastic Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____
Hi! How are you today? What did you like about *Fly Guy vs. the Flyswatter!*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions (*) can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Fly Guy and Buzz go to a flyswatter factory.		
2. Where did Buzz find out the class was going when he got to school?	1	They were going on a field trip to a factory.		
3. Many things happened on the field trip. Tell me some of things. Can you tell me more?	1	They took a tour, they saw how flyswatters were made, they saw the Super Swatter 6000, Fly Guy saved the little fly, listened to Fred the Fly, and got a flyswatter.		*
4. Buzz and Fly Guide met a tour guide at the factory. What does a tour guide do?	3	A tour guide shows people a special place and teaches them about things that are there.		
5. Did Fred the Fly like flies? How do you know?	2	No. He said flies were nasty. He brought out the Super Swatter 6000.		
6. What is the Super Swatter 6000?	1	The Super Swatter 6000 is a big machine that kills flies.		
7. How do you think the little fly was feeling when he saw the Super Swatter 6000?	2	The fly felt scared.		
8. How did the story end?	1	Fred sent everyone home and cancelled all tours. The children went back to school and used the swatters to make an art project.		

Comments:

Comprehension Assessment and Scoring Form (Intervention 5)

Participant's number _____ Date _____ Time: _____ Total Score _____/10

Electronic Book: Bridwell, N. (1985). *Clifford at the Circus*. New York: Scholastic Books.

Protocol: Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____
Hi! How are you today? What did you like about **Clifford at the Circus**? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly.

Open-ended questions can earn up to 3 points.

Types of questions: 1 = Literal 2 = Inferential 3 = Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Emily Elizabeth and Clifford go to the circus. They help the owner with his problems.		
2. How did Emily and Clifford know the circus was in town?	1	They saw a sign.		
3. The owner told Emily Elizabeth and Clifford that everything was going wrong. What were some of the problems that the circus owner was having? Can you tell me more?	1	The animals wouldn't obey, clowns quit, the elephant had a cold, there wasn't gun powder for the cannon, and the hot air balloon got away		*
4. Do you think Clifford was a good clown? Why or why not?	2	Support opinion		
5. What made Clifford so thirsty that he drank all the water in the diver's pool?	1	He ate a lot of cotton candy.		
6. Clifford rescued the diver, Emily Elizabeth and the circus Man. What does rescue mean?	3	To help or save somebody from danger.		
7. How did the story end?	1	Clifford rescued the circus man and Emily.		
8. Do you think the circus man will invite Emily and Clifford to help again? Why or why not?	2	Support opinion		

Comments:

Comprehension Assessment and Scoring (Intervention 6)

Participant's number _____ Date _____ Time: _____ Total Score ____/10

Electronic Book: Arnold, T. (2012). *Ride, Fly Guy, Ride*. New York: Scholastic Inc.**Protocol:** Please set up the audio-recorder prior to assessing the child. Record this each time you assess.

"Participant number _____ Date _____ Book title _____.
 Hi! How are you today? What did you like about *Ride, Fly Guy, Ride!*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the *Elicitation Protocol for Narrative Retelling* for the second assessment. Be sure to record both assessments.

Scoring: 1 point is awarded for each question answered correctly. Open-ended questions can earn up to 3 points.

Types of questions: 1 = Literal 2= Inferential 3= Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Points
1. What was the story about?	2	Fly Guy rides many things because he was blown out of the car.		
2. Where did Fly Guy land after the wind blew him out of the car?	1	It blew him into a truck and then into the truck driver's mouth.		
3. Who was following Fly Guy?	1	Dad and Buzz		
4. How do you think Buzz was feeling when he could not rescue Fly Guy?	2	Buzz was scared, frightened, upset, and sad.		
5. Fly Guy rode on many things. What were some of the things that he rode on? Can you tell me more?	1	Car, truck, boat, train, rocket, bicycle		*
6. Dad and Buzz wondered if Fly Guy would survive the ride on the rocket. What does survive mean?	3	Survive means to stay alive or live.		
7. How did Buzz and Dad get back on the ground from the helicopter ride?	1	They jumped. They used a parachute.		
8. Was Fly Guy afraid to ride again? How do you know?	2	He said that he wanted to ride more. He rode on the bike home.		

Comments:

Comprehension Assessment and Scoring Form
(Post-Intervention ACIRI)

Participant's number _____ Date _____ Time: _____ Total Score _____/10

Electronic Book: Arnold, T. (2010). *Buzz Boy and Fly Guy*. New York: Scholastic Inc.

Protocol: Please set up the audio-recorder prior to assessing the child. Record each time you assess.

"Participant number _____ Date _____ Book title _____.
Hi! How are you today? What did you like about *Buzz Boy and Fly Guy*? I am going to ask you some questions about what you just read. Please think about the story and share your answers with me."

To the assessor: Questions may be asked twice. Use the Retelling Guide for the second assessment. Be sure to record both assessments.

Scoring: Award 1 point for each question answered correctly.

The open-ended question (*) can earn up to 3 points.

Types of questions: 1 = Literal 2= Inferential 3= Vocabulary

Questions	Type	Acceptable Responses	Response Notes	Score
1. What was different about Buzz in the story he wrote?	2	He was as small as Fly Guy, he was super strong, or he could fly.		
2. How can people get to islands?	2	Ships, planes		
3. What is a superhero?	3	A person with special powers; justify answer.		
4. What happened to Buzz and Fly Guy's house?	1	Pirates took the house to a dragon cave on an island.		
5. What are some of the places Buzz and Fly Guy went to in the story? Can you tell me more?	1	House, dragon cave, jail, on the island, on the ship, on the beach		*
6. How did Fly Guy and Buzz get out of jail?	1	Fly Guy had a key.		
7. How did Buzz and Fly Guy make friends with the dragon?	1	They gave him food.		
8. Did Fly Guy like the book Buzz wrote? How do you know?	2	He wanted to read it again.		

Comments:

APPENDIX D

ELICITATION PROTOCOL FOR NARRATIVE RETELLINGS

Systematic Analysis of Language Transcripts (SALT)

Narrative Student Selects Story

Elicitation Protocol:

Prompt the student with, "Tell me about _____ (book). I'm not very familiar with it so you'll have to give me a lot of background information about the story so I can follow it. Start at the beginning and tell me the whole thing from the beginning, middle, to the end."

Examiner Prompts:

Using overly specific questions or providing too much information compromises the process of capturing the speaker's true language and ability level. Avoid asking questions, which lead to obvious and limited responses/answers. Only use open-ended prompts. Open-ended prompts *do not* provide the speaker with answers or vocabulary. But they *do* encourage the speaker to try or they let the speaker know it's ok to move on if needed. Use open-ended prompts/questions as necessary.

Acceptable verbal prompts include:

Tell me more. Just do your best.

Tell me about that/it. You are doing great.

I'd like to hear more about that/it. Tell me what you can.

That sounds interesting. Oh, that sounds interesting.

What else? Mhm.

Keep going. Uh-huh.

Acceptable nonverbal prompts include:

Smiles and eye contact.

Nods of affirmation and agreement.

Retrieved from

<http://saltclasses.saltsoftware.com/pluginfile.php/63/course/section/40/narssrdbdoc.pdf>

APPENDIX E

NARRATIVE SCORING SCHEME

(Heilman, Nockerts, & Dunway, 2010, p. 165-166).

Characteristic	Proficient	Emerging	Minimal/immature
Introduction	<p>Setting</p> <ul style="list-style-type: none"> -Child states general place and provides some detail about the setting (e.g., reference to the time of the setting- daytime, bedtime, or season). -Setting elements are stated at appropriate place in story. <p>Characters</p> <ul style="list-style-type: none"> -Main characters are introduced with some description or detail provided. 	<p>Setting</p> <ul style="list-style-type: none"> -Child states general setting but provides no detail. -Description or elements of story are given intermittently though story. -Child may provide description of specific element of setting (e.g. the frog is in the jar). <p>OR</p> <p>Characters</p> <ul style="list-style-type: none"> -Characters of story are mentioned with no detail or description. 	<ul style="list-style-type: none"> -Child launches into story with no attempt to provide the setting.
Character development	<ul style="list-style-type: none"> -Main character(s) and all supporting character(s) are mentioned. -Throughout story it is clear that child can discriminate between main and supporting characters (e.g., more description of and emphasis on main character(s)). -Child narrates in first person using character voice (e.g., "You get out of my tree, said the owl.). 	<ul style="list-style-type: none"> -Both main and active supporting characters are mentioned. -Main characters are not clearly distinguished from supporting characters. 	<ul style="list-style-type: none"> -Inconsistent mention is made of involved or active characters. -Characters necessary for advancing the plot are not present.
Mental States	<ul style="list-style-type: none"> -Mental states of main and supporting characters are expressed when necessary for plot development and advancement. -A variety of mental state words are used 	<ul style="list-style-type: none"> -Both main and active supporting characters are mentioned. -Main characters are not clearly distinguished from supporting characters. 	<ul style="list-style-type: none"> -No use is made of mental state Words to develop characters.
Referencing	<ul style="list-style-type: none"> -Child provided necessary antecedents to pronouns -References are clear throughout story 	<ul style="list-style-type: none"> -Referents/antecedents are used inconsistently throughout story.. 	<ul style="list-style-type: none"> -Pronouns are used excessively -No verbal clarifiers are used. Child is unaware listener is confused.
Conflict resolution	<ul style="list-style-type: none"> -Child clearly states all conflicts and resolutions critical to advancing the plot of the story 	<ul style="list-style-type: none"> -Description of conflicts and resolutions critical to advancing the plot of the story is underdeveloped. OR -Not all conflicts and resolutions critical to advancing the plot are present. 	<ul style="list-style-type: none"> -Random resolution is stated with no mention of cause or conflict. OR -Conflict is mentioned without resolution. OR -Many conflicts and resolutions critical to the advancing the plot are not present.

Characteristic	Proficient	Emerging	Minimal/immature
Cohesion	<ul style="list-style-type: none"> -Events follow a logical order. -Critical events are included, while less emphasis is placed on minor events. -Smooth transitions are provided between events. 	<ul style="list-style-type: none"> Events follow a logical order. - Excessive detail or emphasis provided on minor events leading the listener astray. OR - Transitions to next event unclear. OR - Minimal detail given for critical events. OR - Equal emphasis on all events. 	<ul style="list-style-type: none"> - No use of smooth transitions.
Conclusion	<ul style="list-style-type: none"> -Story is clearly wrapped up using general concluding statements such as "and they were together again as happy as could be." 	<ul style="list-style-type: none"> -Specific event is concluded, but no general statement is made as to the conclusion of the whole story. 	<ul style="list-style-type: none"> -Child stops narrating, and listener may need to ask if that is the end.

Scoring: Each characteristic receives a scaled score of 0-5. Proficient characteristics = 5; Emerging = 3; Minimal/Immature = 1. Scores between (i.e., 2 and 4) are undefined; use judgment. Scores of zero and NA are defined below. A composite is scored by adding the total of the characteristic scores. Highest score = 35.

A score of 0 is given for Child Errors (i.e., telling the wrong story, conversing with examiner, not completing/refusing task, using wrong language creating inability of scorer to comprehend story in target language, abandoned utterances, unintelligibility, poor performance, components of rubric are in imitation-only).

A score of NA (non-applicable) is given for Mechanical/Examiner/Operator Errors (i.e., interference from background noise, issues with recording (cut-offs, interruptions), examiner quitting before child does, examiner not following protocol, or examiner asking overly specific or leading questions rather than open-ended questions or prompts).

APPENDIX F

CRITERIA FOR EVALUATING CD-ROM STORYBOOKS
FOR YOUNG CHILDREN
(Shamir & Korat, 2006, p. 535)

CD-ROM storybook components	Yes/no
Age appropriate	<p>Is the story's</p> <ol style="list-style-type: none"> 1. Structure appropriate? 2. Written register appropriate?* 3. Font size of the written text appropriate? 4. Amount of text on each screen appropriate? 5. Written text highlighted?
Child control	<p>Does the e-book include</p> <ol style="list-style-type: none"> 6. Separate modes (e.g. read only, read and play, and play only)?* 7. Reading options? 8. A dictionary option?* 9. A print option? 10. An active illustrations option?
Clear instructions	<ol style="list-style-type: none"> 11. Are the instructions given in the e-book? <ol style="list-style-type: none"> (a) Simple and precise?* (b) Accompanied by pictures? (c) Given verbally?*
Independence	<ol style="list-style-type: none"> 12. Does the e-book enable children to master the program with minimum help?
Process orientation	<ol style="list-style-type: none"> 13. Does working with the e-book promote a sense of discovery? 14. Are activations congruent with the story content?* 15. Does the e-book include a separate game mode?
Technical features	<p>Does the e-book</p> <ol style="list-style-type: none"> 16. Install easily? 17. Operate consistently? 18. Include <ol style="list-style-type: none"> (a) Music? (b) Songs? (c) Animation?

Note. * Indicates the question's importance for the evaluation. It likewise indicates that relevant story content is a prerequisite site for conducting evaluation. Based on Haugland and Wright (1997) and De Jong and Bus (2003).

APPENDIX G

PARENT TRAINING PRESENTATIONS

Parent Training Presentation 1**Slide 1**

Title Slide

- Welcome to E-Boosters: Literacy Development during Shared E-Book Reading
- I appreciate your willingness to volunteer for this study. Today, I will provide you with an overview of the procedures, answer questions, and obtain signatures for the necessary paperwork. Please feel free to ask me questions during this slide presentation.

Slide 2

Agenda

- Background
- The Research Study
- Procedures
- Time frame and scheduling
- Scheduling
- Fidelity
- Confidentiality
- Paperwork
- Questions

Slide 3

Background

- As I am sure you know, electronic books and digital devices are very popular with young children.
- Statistics for 2013 reveal that 30% of children within the category of birth to eight years of age had read an electronic book on a mobile device
- This demonstrates a significant increase from 4% in 2011 (Rideout, 2013).
- How are electronic books influencing literacy development?

Slide 4: The Research Study

Child Participants

- Independent reading of electronic books
- Shared reading of electronic books with parent
- Literacy assessments
- Small incentives

Parent Participants

- Eight videotaped shared electronic book reading sessions (approximately 45 minutes each)
- Bi-weekly sessions for three weeks

Slide 5**Scheduling**

- Initial pre- and post-study shared reading sessions will be conducted during the first and last week of the study.
- Six shared parent-reading sessions can be scheduled on Mondays and Wednesdays or Tuesdays and Thursdays for three consecutive weeks.
- Every effort to stay on schedule is requested.
- You will participate in the second training prior to the intervention phase.

Slide 6**Fidelity**

- A questioning protocol will be provided for you to read during the shared reading sessions.
- As part of the protocol, you will preview the story and script prior to your shared reading session.
- Consistency to the intervention protocol is extremely important.
- Please make every effort to read the script as written.
- To assure study fidelity, sessions will be audio-recorded and videotaped.

Slide 7**Confidentiality**

- All data will be collected and stored electronically on a password locked laptop in the researcher's home office. Videotapes, audio recordings, and assessment documents will be secured in a locked file cabinet in the researcher's personal office.
- Numbers will be assigned to all participants to assure confidentiality.
- The research team will conduct data analysis.
- Please refrain from discussing specific books and strategies with other adults or children until the study is culminated.

Slide 8**Paperwork and Questions**

- Please review the forms in your packet.
- Training 2 will take place prior to the beginning of the intervention sessions.

Parent Training Presentation 2

Slide 1

Title Slide

- E-Boosters: Literacy Development During Shared E-Book Reading Part 2
- Welcome to E-Boosters Literacy Development During Shared E-Book Reading

Slide 2

Photograph

- Expanding the Shared E-Book Reading Experience with Your Child

Slide 3

- A note from the researcher
Thank you for the taking time from your busy schedule to participate in this study. Without your commitment, this research could not be conducted or completed. I trust that the results of this study will add insight into comprehension development when using electronic books.

After this training, your six scheduled reading sessions will begin. I will be happy to review your child's results with you once the data has been analyzed, recorded, and approved. Remember, there will be a final session after your 6th session in which you will be videotaped without scripted questions. You are encouraged to practice the strategies learned today at home during your reading practices with either e-books or print text.

Slide 4

Agenda

- Our training today will provide you with a foundation for shared book reading with electronic books. Please feel free to ask questions as the slides are presented.
- The agenda is as follows:
 1. Benefits of shared reading
 2. Electronic Books 101
 3. Overview of E-Boosters
 4. Discussion of each E-Booster
 5. Intervention Protocol
 6. Practice with a sample protocol: *Clifford Goes to Dog School*
 7. Parent responses to children's comments and questions
 8. Questions and concerns

Slide 5

Interactive Shared Reading: The Added Advantage

Interactive shared reading provides many benefits for your child. With your support, your child can:

- become an active participant in the reading process
- co-construct story meaning
- increase vocabulary

- use cues and illustrations to make predictions and inferences
- expand oral language
- broaden background knowledge
- make connections to personal experiences and prior knowledge
- enjoy one-on-one time with you

Slide 6

Electronic Books 101

- E-books have the potential to educate, entertain, and support the digital and reading literacy skills that are needed for the 21st century.
- However, the quality of e-books varies and it is important to understand how the e-book experience can be most beneficial to your child's literacy development.
- Features included in e-books may include dictionary access, games, animations, story narration, music, highlighting words, and pronunciations.
- The interactive features incorporated into each story can support or undermine literacy skills.

Slide 7

Electronic Books 101 (2)

- E-books of high quality are called considerate because the features support the story line.
- Inconsiderate e-books have features, which frequently have animations, or games that interrupt and do not align with the story.
- 'Hot spots' are animations, music, or games that are activated by clicking the mouse or tapping on story graphics or words.
- Animations may pop up and distract the reader from the story.

Slide 8

Considerate vs. Inconsiderate E-Books

- The following scenario explains an inconsiderate hot spot within the story.
- Benny, the baby giraffe, is just learning to walk. His friend Milo says, "You can do it." Shelly sheep says, "Come on try again." Mugsy mouse says, "Benny you are strong. We can play when you can walk."
- Mugsy is a hot spot. The reader can tap or click on the mouse and three more mice pop up eating cheese. This animation has nothing to do with the story line.

Slide 9

What are E-Boosters?

E-Boosters are strategies designed to:

- increase your child's story understanding during shared electronic book and regular text reading
- promote interactive discussion during the reading process
- introduce your child to reading skills that will be encountered in formal reading instruction

Slide 10

E-Boosters also . . . (2)

- familiarize your child with new vocabulary words
- elicit higher level thinking through intentional question prompts that encourage predicting, analyzing, making personal connections and inferences while reading
- connect interactive features to the story line

Side 11

E-Booster 1: Set the Purpose for Reading

- The cover of a book provides a glimpse of what is yet to come. Set the stage for reading and thinking by taking the time to discuss the title and illustrations.
- Provide the opportunity to analyze the cover picture, make personal connections to the illustrations or title, and predict the story's main idea.
- Your question prompts will engage your child's thinking. As you read the story, refer back to the original purpose until your child is able to comprehend the main gist of the story.
- Use this initial discussion as a way to build anticipation and enjoyment as the storyline is revealed

Slide 12

E-Booster 2: Connect the Features to the Story Line

- Sometimes features are distracting or irrelevant to the story line. When this is the case, make a statement or ask a question that will draw your child's attention back to the most recent event before proceeding with the narration.
- Connecting statements are provided in the protocol to draw your child's attention back to the story line after accessing lightning bolts.
"Clifford just saved the kitten; let's see what is going to happen now."

Slide 13

E-Booster 3: Engage your Child in Interactive Discussion

- Electronic books for the young child may offer opportunities to interact with words, pictures, skill tasks, and games independently. However, they do not provide questions and respond to your child's comments.
- Look for opportunities to ask questions that ask your child to:
 - make connections to personal experiences and people
 - predict what will happen next
 - answer questions that start with the 5 Ws: Who, What, When, Where, Why
 - recall events
 - make inferences from clues in the text or illustrations
 - Why do you think that happened?"
 - "How did a specific character feel?"
 - "What do you think would happen if...?"
 - "What is this story about?"

- Note: The protocol will provide you with questions to ask on specific pages. Please try to follow the protocol to the best of your ability.

Slide 14

E-Booster 4: Make Personal Connections

- Your child's thinking process seeks to connect new information to prior knowledge and personal experiences.
- This helps the child to make meaning and decide what is relevant to the story.
- By listening to your child's comments, you can help your child decipher what is pertinent to the story line or when something similar was personally experienced.

Slide 15

E-Booster 5: Target New Vocabulary Words

- Vocabulary development is a key factor in reading achievement and comprehension development.
- Storybooks are a rich resource that exposes children to unfamiliar words not often heard during conversations.
- Target new words in the story.
- Have your child repeat the word.
- Use context clues and illustrations to define and promote word meaning.
- Remember to reinforce the word beyond the shared book reading setting.
- If the e-book has a dictionary feature, encourage your child to access it frequently and share new word meanings with you.

Slide 16

E-Booster 6: Retell the Story

- Retelling a story is more challenging than recalling separate events. It requires the child to organize the story into a coherent representation.
- Retelling is a skill that potentially influences reading comprehension when practiced. Look for opportunities within the story to retell the events in order.
- The questioning protocol will include one opportunity per story to retell an event.
- Assist your child's retelling skills by scrolling through the pages until the first part of the event is presented. Scroll through the pages to use the pictures as cues.
- Use prompts such as "What happened next?" "Can you tell me more about...?"
- Co-create the retelling by sharing different parts of the event.

Slide 17

E-Booster Recap

- **Congratulations!**
- Let us review the six E-Boosters before we preview the protocol. Incorporating these strategies into shared reading may potentially enrich your child's comprehension development and reading experience.
- **What are the 6 E-Boosters?**
 1. Set a purpose
 2. Connect the features with the storyline

3. Engage your child through interactive discussion
4. Make personal connections
5. Target new vocabulary words
6. Retell the story to another person

Slide 18

Intervention Protocol and Procedures

1. When you arrive at the center, you will be taken to the area in which you will read with your child.
2. You will be given a scripted questioning protocol, like the one you have here, and the iPad. The story will be ready to start. (Give protocol)
3. Take the time to review the protocol with the electronic story so that you will become familiar with activities prompted by the bolts and the questions.
4. Note that there is not a question for every page.
5. Familiarize yourself with the way to stop and start the narration.
6. When you are finished previewing, let the researcher know that you are ready to read with your child.

Slide 19

Intervention Protocol (2)

8. Be sure to listen to the narration prior to accessing the bolts. When the narration is on, the pages will turn automatically.
9. If a page should turn and you realize that you did not ask the question, scroll back and ask the question.
10. The *Parent Responses* handout discusses how to address your child's answers, questions, and possible behaviors. It will be available at each session. (Review the handout.)
11. Following the joint reading session, your child will be administered a comprehension assessment by the researcher.
12. After that, your child may return to the activities at the center or go home. Once again, please follow the protocol as closely as possible. Thank you.

Slide 20

Protocol Practice

1. Let's start the story and review the protocol for *Clifford Goes to Dog School*.
2. Note that the words you are to say are in that you say are in standard font and not italicized.
3. The Clifford series does not have page numbers. Next to each number are the first few words on the page to help you keep track of your place.
4. As you preview the story, notice how the E-Boosters are incorporated.
- 5 Let's practice with the iPad and scripted questions.

Slide 21

Questions or Concerns

- Do you have any questions?
- If at any time you have a question or concern, please contact me through the information I have provided.

Slide 22

Bravo!

- You are now an E-Booster Expert!
- Thank you for attending this training.
- Wishing you **Extra-Ordinary** reading adventures with your child!

APPENDIX H

PARENT QUESTIONING PROTOCOLS

Parent Questioning Protocol for *Clifford's Good Deeds***By Norman Bridwell*****Cover***

- *Point to the title and author.*
- The story we are going to read is *Clifford's Good Deeds* by Norman Bridwell.
- What do you think a good deed is?
- A good deed is doing something that helps someone else.
- *Make a personal connection to a time when your child or family member did a good deed.*
- What good deeds do you think Clifford will do? Let us find out.

Title page and Dedication***START NARRATION NOW*******Be sure to listen to the narration before accessing bolts.***Page 1: *"Hello."*Page 2: *"A boy named Tim . . ."*

- What does Tim want to do?

Page 3: *"A man was raking leaves."*Page 4: *" . . . make Clifford sneeze."*

- What made Clifford sneeze?
- ***Access the bolt.** *Tap the bolt. Listen to each prompt. Allow your child to respond independently. Assist your child if necessary. Tap on the object that answers the question. Reaccess one more time.*
- I wonder what Clifford, Emily Elizabeth, and Tim will see when they get down the street.

Page 5: *"We saw a lady painting her fence."*

- ***Access the bolt.** *This is the same type of prompt as the prior one. Access once.*
- Mary Elizabeth and Tim are doing a good deed by helping the lady paint the fence. Let us find out if Clifford does a good deed, too.

Page 6: *"Clifford felt so happy . . ."*

- Why do you think the lady did not want the rest of the house painted?

Page 7: *"Then we saw an old lady . . ."*

- How does Clifford try to get the kitten down?

Page 8: *“But his paw . . .”*

- Oh, no!
- ***Access the bolt.** *There are three prompts. Tap the bolt. Listen to each prompt.*
- *Allow your child to respond independently. Assist your child if necessary.*
- Let us find out what happened to that kitten.

Page 9: *Picture*

Page 10: *“Clifford moves pretty fast . . .”*

Page 11: *“The lady was glad . . .”*

- Do you think the lady would want Clifford’s help again?
- **Retell: Before** we go to the next page, please tell me what happened in the part when Clifford first saw the kitten in the tree.
- What happened first? What happened next? What happened last?
- Let us go back through the pages to remember what has happened.
- *With the narration turned off, scroll back to the beginning and revisit the pages while your child retells this part of the story. You may assist in the retelling.*

Page 12: *“Somebody had let the air. . .”*

- Why does the man need help?
- ***Access the bolt.** *The prompt asks three times for objects that start with C (collar, cat, and car). Each time the picture order is changed. Assist your child in getting them right the first time.*
- Clifford also starts with ___(C); Let’s find out what Clifford will do next.

Page 13: *“Tim took a rubber tube . . .”*

Page 14: *“Clifford blew.”*

- What mistake did Clifford make when he was blowing air into the tire?

Page 15: *“The man felt better when he took his car to the garage.”*

Page 16: *“We saw a small . . .”*

- What problem did the little boy have?
- ***Access the bolt.** *These three prompts ask for definitions for small, deed, and mistake. Assist your child pick the correct response.*
- *Share a time when you (parent) made a mistake.*
- What kind of mistake could Clifford make if he helps the little boy?

Page 17: *“Clifford gave him a hand.”*

- Page 18: *“Clifford was a little too strong.”*
- ***Access the bolt.** *Match the word to the picture s. Point to the word and read it. Then instruct your child to drag the word to the correct picture. Reaccess two more times.*
 - Clifford just threw the newspaper. Let’s see what happens next.
- Page 19: *“Nothing seemed to go . . .”*
- Page 20: *“Then we saw . . .”*
- *Discuss with your child what is happening in the picture. Point to the manhole.*
 - That is a manhole. A manhole is a hole in a city street that someone can go down to do work under the street.
 - Look at Clifford now.
- Page 21: *“Tim said,”*
- Why do you think someone who has been hurt should not be moved?
- Page 22: *“We helped the men . . .”*
- ***Access the bolt.** *There are three prompts for your child to identify familiar story pictures after scratching away portions of the picture.*
 - Look, they are putting the cable back into the manhole.
- Page 23: *“Clifford felt very sad.”*
- Why did Clifford and Emily Elizabeth head for home?
- Page 24: *“The house on the corner. . .”*
- Whom did Tim call?
- Page 25: *“Clifford ran to . . .”*
- Page 26: *“Luckily, there was a . . .”*
- Why do you think Clifford is drinking water from the swimming pool?
- Page 27: *“Clifford put out . . .”*
- Page 28: *“The firemen finished . . .”*
- ***Access the bolt.** *There are three sequence prompts using the same pictures, but in a different order each time. Have your child describe what is happening in each picture. If the sequence was not correct the first time, reaccess the prompt and redo.*
 - Let us see what happens after this good deed.
- Page 29: *“That afternoon . . .”*
- Why did the mayor give Clifford, Tim, and Emily Elizabeth medals?

Page 30: “*Of course, Clifford . . .*”

- *Read the word on the medal.*
- What happened in the story that made Clifford a hero?

Final Bolt: Do not access at this time.

- That is the end of our story about Clifford trying to do good deeds for people. You can play one more game after you go visit with _____. She will ask you to tell her about the story since she did not read it. She has a friend who would like to hear it, too. After that, she will ask you some questions. If you want to play a drawing game for a few minutes, you can do that. Have fun!

Parent Questioning Protocol for *I Spy Fly Guy!*
By Tedd Arnold

Cover

- *Point to the title and author.* The story we are going to read is *I Spy Fly Guy* by Tedd Arnold.
- Let's look at the cover.
- Why does that fly look so big?
- *Point to the magnifying glass.*
- This is called a magnifying glass.
- *Say magnifying glass.* It is used to make things look bigger.
- See how this magnifying glass helps you see. *Show the magnifying glass.* Use it to look at the print.
- See how big Fly Guy looks.
- I wonder what 'I spy' has to do with the story. Let's find out.

Title page and Dedication

START NARRATION NOW

****Be sure to listen to the narration before accessing bolts.***

Page 1:

Page 2:

Page 3:

- What game are Buzz and Fly Guy going to play?
- Where do you (would you) hide when you play hide and seek at home?

Page 4:

- Why do you think Fly Guy always hid in the garbage can?

Page 5:

Page 6:

- What does Buzz say when he finds Fly Guy? ("*I Spy Fly Guy!*")
- What does that mean?
- Spy means to see something.
- When Buzz spies Fly Guy, it means that he sees Fly Guy.

Page 7:

Page 8:

- **Access the bolt.** Tap on the object that answers the question. Tap on the bolt two more times, if your child is interested.
- I wonder where they will hide next.

Page 9:

Page 10:

Page 11:

- What do you think will happen to Fly Guy?

Page 12:

- **Access the bolt.** This word search is too advanced. Open it up if your child is curious. Then return to the story.
- This may take too long. Let us find out what happened to Fly Guy and Buzz.

Page 13:

- What do you think Buzz wants Dad to do?

Page 14:

Page 15:

- They went to the dump.
- It is a place where garbagemen take trash.

Page 16:

- **Access the bolt.** There are three prompts. Tap on the picture that answers the question. Reaccess two more times.
- Buzz is running into the dump!

Page 17:

Page 18:

- What does Buzz hear all the flies saying?

Page 19:

- **Retell:** Before we go to the next page, please tell me what happened to Fly Guy when he was eating in the garbage can?
- What happened first? What happened next? What happened last?
- Let us go back through the pages to remember what has happened.
- *With the narration turned off, scroll back to the beginning and revisit the pages while your child retells the story. You may assist in retelling the story.*
- *Continue reading the story.*

Page 20:

Page 21:

Page 22:

- *Access the bolt: Scratch away a portion of the picture to identify a familiar object or person in the story. Access two more times.*
- Let us see if that is Fly Guy hiding in the can.
- What does that fly do to Buzz?
- He boinks Fly Guy. That means he hit him on the nose.

Page 23:

- What happens to Buzz now?

Page 24:

- Why was Buzz sad?

Page 25:

Page 26:

- **Access the bolt.** *Three picture match prompts require dragging the word to the picture. Read the words to your child. Access two more times, if your child is interested.*
- Let's find out why Buzz is smiling.
- What did Buzz remember?

Page 27:

Page 28:

Page 29:

Page 30:

- Who won?
- What do you think Buzz learned about the dump?

Final Bolt: Do not access at this time.

- That is the end of our story about Buzz trying to find Fly Guy at the dump. You can play one more game after you go visit with _____. She will ask you to tell her about the story since she did not read it. She has a friend who would like to hear it, too. After that, she will ask you some questions. If you want to play a drawing game for a few minutes, you can do that. Have fun!

**Parent Questioning Protocol for *Clifford's Birthday Party*
By Norman Bridwell**

Cover

- *Point to the title and author.* The story we are going to read is *Clifford's Birthday Party* by Norman Bridwell.
- Look at the picture. I wonder what Clifford did at his birthday party.
- How could Clifford's be like one of your birthday parties?
- Let us find out.

Title page and Dedication

TURN NARRATION ON

****Be sure to listen to the narration before accessing bolts.***

Page 1: "*My name is Emily Elizabeth . . .*"

Page 2: "*Mom had ice-cream . . .*"

- What did Mom do to get ready for the party?

Page 3: "*When it was time . . .*"

- Why was Emily upset?

Page 4: "*We went looking . . .*"

- ***Access the bolt.** The prompt asks three times for objects that start with C (cake, cookies, and candle). Each time the picture order is changed. Help your child by stressing the initial sound in each word. Two more prompts provide additional opportunities to get the same three words correct.
- Clifford starts with ___ (C), let's find out why Clifford's pals did not *come* to the party.

Page 5: "*Jenny said . . .*"

- Why didn't Clifford's friends come?

Page 6: "*I told them . . .*"

Page 7: "*. . . and everyone came to the party.*"

- What presents do you think Clifford's friends are bringing?

Page 8: "*First, we opened . . .*"

Page 9: "*Clifford blew . . .*"

Page 10: "*We really had . . .*"

Page 11: "*Then Clifford pulled . . .*"

Page 12: “*That was a mistake.*”

- Why was pulling out the stopper in the ball a mistake?

Page 13: “*The next gift was . . .*”

- What is the piñata?
Children swing a stick at it until it breaks and all the treats fall out.
- Look at the piñata Clifford is getting. What does it look like?
- What would you like to find in a piñata?

Page 14: “*We hung . . .*”

Page 15: “*Clifford was supposed . . .*”

Page 16: “. . . *and the piñata broke.*”

Page 17: “. . . *but we decided . . .*”

- Why doesn’t Emily Elizabeth want Clifford to have any more piñatas?
- **Retell:** Before we go to the next page, tell me what happened when Clifford got the piñata.
- What happened first? What happened next? What happened last?
- *With the narration turned off, scroll back to the page that starts with, “The next gift was...” You may assist in retelling the story.*
- *Continue reading.*

Page 18: “*We all laughed . . .*”

Page 19: “*But it was just . . .*”

Page 20: “*Alisha and Nero’s . . .*”

- Stop the narration to read the toy dog’s captions.

Page 21: “*Clifford thought . . .*”

- ***Access the bolt.** *There are three recall questions. Tap on the correct answer and reaccess the bolt two more times, if your child is interested.*
- Clifford looks like he enjoys playing with his toy-talking dog. I wonder what will happen.

Page 22: “*Uh-oh.*”

- How do you think Clifford feels Alisha feels now that her gift is broken?

Page 23: “*It was time . . .*”

- ***Access the bolt.** *This prompt requires scratching off part of a picture to identify a familiar character. Reaccess the prompt two more times.*
- Cynthia gave Clifford a gift certificate to a doggie beauty parlor.

- People get their haircut, shampooed, and curled in a beauty parlor.
- What would happen to Clifford at a beauty parlor?
- Do you think getting a gift certificate to a doggie beauty parlor is a good present for Clifford?

Page 24: *"We each had our . . ."*

- ***Access the bolt.** Tap on the picture that matches the prompt. One prompt.

Page 25: *Picture*

- ***Access the bolt.** Identify the picture that matches the prompt. Two prompts.
- Let's see what Emily decides.

Page 26: *"I like Clifford . . ."*

- What did Emily Elizabeth do with the gift certificate?

Page 27: *"Then came . . ."*

Page 28: *". . . when his family . . ."*

- What surprised Clifford at the end of the party?

Page 28: *"He hadn't seen . . ."*

- ***Access the bolt.** *There are three opportunities for your child to put the same three pictures in the order of first, next, and last. Once your child has completed it correctly, continue reading.*
- Clifford has missed his family.

Page 29: *"Clifford liked . . ."*

- What was Clifford's favorite present?
- *End of story. Do not turn page.*

Final Bolt: Do not access at this time.

- That is the end of our story about Clifford. It told about all of the things that happened at Clifford's birthday party. You can play one more game after you go visit with _____. She will ask you to tell her about the story since she did not read it. She has a friend who would like to hear it too. After that, she will ask you some questions. If you want to play a drawing game for a few minutes, you can do that. Have fun!

**Parent Questioning Protocol for *Fly Guy vs. the Fly Swatter*
By Tedd Arnold**

Cover

- Point to the title and author. The story we are going to read is *Fly Guy vs. the Flyswatter* by Tedd Arnold.
- Let's look at the cover. Fly Guy is standing on a flyswatter.
- Flyswatters swat and kill flies.
- *Show the flyswatter (prop).*
- What do you think will happen to Fly Guy in this story?

Title page and Dedication

START NARRATION NOW

****Be sure to listen to the narration before accessing bolts.***

Page 1:

- What is Buzz doing?

Page 2:

- ****Access the bolt.*** *The child is directed to tap an object in the picture that answers the prompt. Reaccess one more time.*
- Look at Fly Guy. What is he doing in Buzz's backpack?

Page 3:

- ****Access the bolt.*** *The same directive as the previous two prompts. Only one prompt is provided.*
- *Point to the question mark.*
- The question mark in the picture shows that Fly Guy does not know what is happening. He might be thinking, "Where am I going?"
- Let's find out if Buzz knows that Fly Guy is going to school with him.

Page 4:

Page 5:

- Where are the children going?

Page 6:

Page 7:

Page 8:

- Look at the factory. A factory is where things are made.
- *Read and point to the name on the factory.*
- How do you think Fly Guy will feel about going inside this factory? Why?

Page 9:

Page 10:

- A tour guide shows people different things in a special place like a factory or museum.

Page 11:

- What is in the showcase on the wall?
- Let's look at the different kinds of flyswatters in the museum.
- Point to the different flyswatters and read their names.

Page 12:

- **Access the bolt. Tap on the picture that matches the prompt. Access the bolt two more times.*
- Let's see what it looks like inside a flyswatter factory.

Page 13:

- What does the worker give the children?

Page 14:

- **Retell:** Before we turn the page, tell me what happened when Buzz got to the flyswatter factory.
- Let us go back through the pages to remember what has happened.
- *With the narration turned off, scroll back to page 8. Revisit the pages 8-13 while your child retells the story. You may assist in retelling the story.*
- What happened first? What happened next? What happened last?
- *Continue reading the story.*

Page 15:

- **Access the bolt. Tap on the picture to answer the question. There are three prompts. Access the bolt two more times.*
- Let's find out what Fred the Fly has to say.

Page 16:

Page 17:

- What did Fred the Fly tell the boys and girls about flies?
- Why did Fly Guy get mad?

Page 18:

Page 19:

- Look at the Super Swatter 6000.
- How do you think it works?
- *Point to the different parts.*

Page 20:

Page 21:

- *Access the bolt. This word search is too advanced. Access it if your child is curious and then return to the story.*
- This may take too long. Let's find out what will happen to the little fly.
- What does release mean?
- Release means to let go. The little fly is being released or let go from the jar.
- Why do you think Fred released the fly?

Page 22:

Page 23:

Page 24:

- When have you been as scared as Fly Guy and the little fly?

Page 25:

- How did Fly Guy save the little fly?

Page 26:

Page 27:

- **Access the bolt. Scratch away portions of a picture to reveal a character or objects in the story. Reaccess two more times.*
- What happened to Fred the Fly?

Page 28:

Page 29:

- Who told everyone to get out?

Page 30:

- What did the class think about the field trip?
- **Ignore the last bolt.**

- That is the end of our story about Fly Guy and Buzz going on a field trip to the flyswatter factory. You can play one more game after you visit with _____ . She will ask you to tell her about the story since she did not read it. She has a friend who would like to hear it, too. After that, she will ask you some questions. If you want to play a drawing game for a few minutes, you can do that. Have fun!

**Parent Questioning Protocol for *Clifford at the Circus*
By Norman Bridwell**

Cover

- The story we are going to read is *Clifford at the Circus* by Norman Bridwell.
- Where is Clifford?
- If you have been to a circus, revisit the memory together.
- What do you think will happen at the circus?
- Let us find out.

Title and Dedication page

START NARRATION NOW

****Be sure to listen to the narration before accessing bolts.***

Page 1: “*My name is Emily Elizabeth . . .*”

- What did the sign tell Emily Elizabeth and Clifford?

Page 2: “*We always wanted . . .*”

- ****Access the bolt.*** *Read the words and have your child match them to the picture. Reaccess the prompt two more times, if your child is interested.*
- Let’s read to find out why everyone looks sad.
- What does the circus owner tell Emily and Clifford?

Page 3: “*I told them . . .*”

Page 4: “*The first problem . . .*”

- What was the first problem?

Page 5: “*Clifford gave . . .*”

Page 6: “*They listened . . .*”

- ***Access the bolt.*** *Tap on the answer to the question (one prompt).*
- Clifford helped the animal trainer. Let’s find out what else Clifford does at the circus.

Page 7: “*Some clowns . . .*”

- ****Access the bolt.*** *Tap on the answers to the questions (two prompts).*
- Let’s find out why Emily is painting Clifford’s face.

Page 8: “*Clifford tried on . . .*”

Page 9: “*He wagged . . .*”

- Why did the wagon go flying?

Page 10: *"The tightrope walker . . ."*

- ***Access the bolt.** *The prompt asks three times for objects that start with C (clown, canon, Clifford). Assist your child in getting them right the first time. This is confusing since the sound at the beginning of circus does not sound like the choices provided. Explain that C makes two sounds: one like the sound that starts circus and the other that sounds like the start of Clifford. The pictures will look for the sound that starts like Clifford.*
- Let's find out what happens to Clifford next. .

Page 11: *"Before the next act . . ."*

- **Retell:** Before we go to the next page, please tell me what happened when Emily and Clifford first got to the circus to the part when Clifford becomes a clown.
- Let us go back through the pages to remember what has happened.
- What happened first? What happened next? What happened last?
- *With the narration turned off, scroll back to the beginning and revisit the pages while your child retells the story. You may assist in retelling the story.*

Page 12: *"He sniffed . . ."*

Page 13: *"Licking the cotton candy . . ."*

- *Use the picture to explain what happens in a high dive act.*
- Why did the circus man try to stop Clifford from drinking the water?

Page 14: *"It was too . . ."*

- ***Access the bolt.** *Sequence three pictures in the order of first, next, and last.*
- What will happen to the diver?

Page 15: *"But he didn't . . ."*

Page 16: *"The second half . . ."*

Page 17: *"So Clifford slipped . . ."*

- How did Clifford help the elephant act?

Page 18: *"The next act . . ."*

- *Explain what happens in the human canon ball act.*

Page 19: *"So Clifford helped . . ."*

Page 20: *"He helped her . . ."*

- ***Access the bolt.** *Three prompts ask questions that pertain to the circus acts. Your child will need help to locate the correct answer, since all the answers are in text. Do all three if your child is interested.*
- Where did the lady land?

Page 21: “*Then came the great finale.*”

- The finale is a big ending right before a show is finished.
- *If appropriate:* There is always a big finale at the end of fireworks.
- Look at all the people watching.
- What are Emily Elizabeth and the circus man doing for the great finale?

Page 22: “*Oh dear, the rope . . .*”

- Emily Elizabeth and the circus man are floating away in a hot air balloon.
- What is a hot air balloon?
- Can you see the basket on the bottom? It takes people high up in the air.
- Why are the people upset?

Page 23: “*But he missed . . .*”

Page 25: “*Clifford didn’t . . .*”

Page 26: “*He used some telephone . . .*”

Page 26: *Picture*

- How did Clifford try to get the balloon down?

Page 27: “*Bull’s eye!*”

- ***Access the bolt.** Choose the puzzle with six pieces. Tap the puzzle. Drag the pieces to the correct position. Continue reading after completing one six-piece puzzle.
- Let’s see what happens to Emily Elizabeth and the circus man.
- Bulls-eye means that the pole hit its target. The balloon was hit.
- What will happen now?

Page 28: “*The balloon was falling . . .*”

- Why were Emily Elizabeth and the circus man scared?

Page 29: “*But Clifford . . .*”

Page 30: *Picture*

Page 31: “*Everybody said . . .*”

- How did Clifford save the show and Emily Elizabeth?
- ***Access the bolt.** Enjoy the video clip of circus acts.
- That is the end of our story about the many ways Clifford helped at the circus. You can play one more game after you visit with _____. She will ask you to tell her about the story since she did not read it. She has a friend who would like to hear it, too. After that, she will ask you some questions. If you want to play a drawing game for a few minutes, you can do that. Have fun!

**Parent Questioning Protocol for *Ride, Fly Guy, Ride!*
By Tedd Arnold**

Cover

- *Point to the title and author.* The story we are going to read is ***Ride, Fly Guy Ride!*** by Tedd Arnold.
- *Read the story title and author.*
- Let's look at the cover.
- What is Fly Guy doing?
- Let's find out if Fly Guy is going for a ride to some place special.

Title page and Dedication

START NARRATION NOW

****Be sure to listen to the narration before accessing bolts.***

Page 1:

- What else might Fly Guy ride?

Page 2:

Page 3:

- What do Buzz and Fly Guy want to do with Dad?

Page 4:

Page 5:

- How do Fly Guy and Buzz stay safe while they ride in the car?
- Dad reminded them to buckle up. Who reminds you to do that?

Page 6:

Page 7:

- Why did Fly Guy go out of the car window?

Page 8:

- ****Access the bolt.*** *The prompt directs the child to scratch off part of a picture and identify it. Word choices are narrated. Access the bolt two more times.*
- Oh, no, Fly Guy what will happen to you?

Page 9:

Page 10:

- What does Buzz want Dad to do?

Page 11:

- *Read the company name on the truck.*
- That is a moving truck. It takes people's furniture and belongings to their new home. *Make a personal connection to a family member or friend moving.*
- After Fly Guy was blown into the truck, where did he land?

Page 12:

Page 13:

Page 14:

- **Access the bolt. Tap on the picture that answers the question, "Who said . . .?" Access the bolt two more times.*
- Why was it hard to follow Fly Guy?

Page 15:

Page 16:

- What does overboard mean?
- It means to jump off the side of a boat.
- Why did Fly Guy jump overboard?

Page 17:

- ***Retell:** Before we turn the page, please tell me what happened right after Fly Guy was blown out of the car.*
- What happened first? What happened next? What happened last?
- Let us go back through the pages to remember what has happened.
- *With the narration turned off, scroll back to the beginning and revisit the pages while your child retells the story. You may assist in retelling the story.*
- *Continue reading the story.*
- See Fly Guy. He is going right near the elephant. I wonder what will happen next. Let's find out what happens on the circus train.

Page 18:

- ***Access the bolt.** This word search is too advanced. Access it if your child is curious and then return to the story.*
- This may take too long and is a hard because of all the big words.
- Look at Dad and Buzz. Let's find out if they find Fly Guy.

Page 19:

Page 20:

Page 21:

- How did Fly Guy get onto an airplane?

Page 22:

- ***Access the bolt.** Tap on the pictures to put the story in the order of first, next, and last. If your child answers them correctly, there is no need to reaccess the bolt. Two more opportunities are provided in which the pictures are in a different starting order.
- I wonder if Buzz will catch up with Fly Guy.

Page 23:

Page 24:

Page 25:

- What roared past Dad and Buzz when they were coming down in their parachutes?

Page 26:

- ***Access the bolt.** Word Bird provides blanks that stand for a word. Tap on the selected letter to put in the blank. When incorrect letters are selected the bird's balloons break. **It is time consuming and probably not appropriate for the nonreader.** However, if you want to play one round, tap the letters until the blanks are filled in or the balloons broken. Read the word and return to the story.
- A rocket! I hope Fly Guy doesn't go up in a rocket. Let's find out.

Page 27:

- Why is Buzz crying?
- Survive means to live. Buzz wants Fly Guy to survive and live.

Page 28:

Page 29:

Page 30:

- What tells you that Fly Guy still loves to ride?
- ***Access the bolt.** Tap on the six-piece puzzle only.
- That's the end of our story about all of things that took Fly Guy for a ride. He certainly went to many places! You can play one more game after you go visit with _____. She will ask you to tell her about the story since she did not read it. She has a friend who would like to hear it, too. After that, she will ask you some questions. If you want to play a drawing game for a few minutes, you can do that. Have fun!

APPENDIX I

PARENT RESPONSES

**Parent Responses: “What do I say when . . .”**

My child gets an answer right.

- **Repeat:**
 - “That’s right, repeat the correct response.”
 - “That’s right, Buzz wanted to find Fly Guy.”
- **Expand the answer.**
 - “That’s right, Buzz wanted to find Fly Guy because it was time to go home.”
- **Praise: Be specific.**
 - “Good job remembering ____.”
 - “I am proud of you for getting the answer right.”
 - “I like the way you noticed that ____.”

My child does not know the answer.

- **Scaffold:**
 - “Let’s see if we can find the answer . . .”
 - “Let’s see if the pictures will help us answer this question.”
 - “Tell me what else you know about...”
 - “What do you remember about . . . ?
 - Provide the correct answer in the question format.
 - Complete a phrase: “Clifford was too big to ____.”

We have to retell a part of the story.

- **Prompt:**
 - “What do remember about when . . .?”
 - “What happened first?”
 - “What happened next?”
 - “What happened after ____?”
 - “How did it end?”
 - “How did this part of the story end?”

My child wants to access the bolts before the narration is finished or wants to go straight to the bolts.

- **Redirect:**
 - “Let’s listen to the page first.”
 - “Let’s finish the story and then you can play the art game when you visit with _____.”

APPENDIX J

PARENT SATISFACTION SURVEY

Please indicate the extent to which you agree or disagree with the following statements by writing the number that reflects your opinion on the line.

Strongly Disagree	Disagree Somewhat	Neutral	Agree Somewhat	Strongly Agree
1	2	3	4	5

- _____ 1. I expanded my knowledge regarding reading strategies that will support my child's comprehension development.
- _____ 2. I gained valuable experience with integrating electronic features to the storyline during story discussions.
- _____ 3. I feel confident that I am able to use the strategies learned in the intervention when I read electronic books with my children in the future.
- _____ 4. I am able to see a positive change in the level of interaction experienced during shared book reading sessions.
- _____ 5. I have gained confidence in developing and integrating multi-level questions during shared book reading.
- _____ 6. I would recommend this interactive intervention to parents interested in increasing their child's (4-5 years old) comprehension skills when reading electronic books.

Open-ended questions:

7. How, if at all, has this experience changed your perspective regarding shared book reading with electronic books?
8. What, if anything, about the intervention would you change or modify?
9. What aspect of the intervention was most valuable to you?
10. Further comments: Please use the back if necessary.

Your comments and suggestions are appreciated. Have a nice day!

APPENDIX K

PARENT TRAINER FIDELITY CHECKLISTS

**Parent Trainer Fidelity Checklist
First Training**

Thank you for volunteering to rate the trainer's fidelity to the parent training objectives. This checklist is designed to be used when observing or listening to the presentation. Please note any occurrences that may have affected the presentation's effectiveness.

Directions: Please check the appropriate box.

Target Behavior	Observed	Not Observed	Comments
Trainer prepared setting and materials prior to the training.			
Trainer set up the PowerPoint presentation in a manner conducive to participant's viewing.			
All handouts and training materials were organized and prepared prior to the training.			
Trainer greeted parents and expressed gratitude for their participation in the study.			
Trainer started the presentation.			
Trainer provided background for the study.			
Trainer discussed role expectations for children and parents.			
Trainer presented the time frame and a form for scheduling parent-child sessions.			
Trainer discussed fidelity procedures.			
Trainer discussed confidentiality of subjects and data.			
Trainer asked parents to fill out the IRB form and Parent Information Form.			
Trainer demonstrated how to operate the Storia program.			

**Parent Trainer Fidelity Checklist
Second Training**

Thank you for volunteering to rate the trainer's fidelity to the parent training objectives. This checklist is designed to be used when observing or listening to the presentation. Please note any occurrences that may have affected the presentation's effectiveness. Directions: Please check the appropriate box.

Target Behavior	Observed	Not Observed	Comments
Trainer prepared setting and materials prior to the training.			
Trainer set up the PowerPoint presentation in a manner conducive to participant's viewing.			
All handouts and training materials were organized and prepared prior to the training.			
Trainer started the presentation.			
Trainer greeted parents and expressed gratitude for their participation in the study.			
Trainer provided an overview of the presentation's agenda.			
Trainer explained the benefits of shared reading.			
Trainer justified the use of e-books as a resource.			
Trainer explained the difference between considerate and inconsiderate e-books.			
Trainer introduced E-Boosters as strategies to strengthen comprehension during electronic book reading.			
Trainer introduced and explained the six E-Boosters.			

**Parent Trainer Fidelity Checklist
Second Training Continued**

Target Behavior	Observed	Not Observed	Comments
Trainer reviewed the E-Boosters.			
Trainer presented the protocol procedures.			
Trainer provided the opportunity to practice using the questioning protocol.			
Trainer solicited questions or concerns.			
Trainer gave contact information to participants.			
Trainer thanked parents for their participation and support.			

APPENDIX L

FIDELITY FOR ADMINISTRATION OF COMPREHENSION ASSESSMENTS

Participant number: _____ Date of Session _____
 Assessor: _____ Fidelity evaluator _____

Directions:

Listen to audio tape of the assessment session and score the *Comprehension Assessment and Scoring Form* for procedure fidelity. Check the box that applies. Include comments that pertain to interactions that may have influenced the child's responses.

Assessment Procedures	Not Observed	Procedure Implemented	Comments
Comprehension Questions			
Assessor included the participant number, date, and book title at the beginning of the recording session.			
Assessor welcomed child.			
Assessor asked questions no more than two times.			
Assessor wrote responses in designated boxes.			
Assessor interacted with the child in a positive affirming manner.			
Assessor refrained from influencing the child's responses by leading, providing extraneous information, or displaying positive or negative affect.			
Assessor scored each question.			
Narrative Retelling			
Assessor offered the child a prop (stuffed animal) to listen to the story.			
Assessor followed the Elicitation Protocol.			
Assessor turned narration off in e-book.			
Assessor refrained from asking questions.			
Assessor only used open-ended prompts.			
Assessor encouraged the child.			
Assessor communicated that it was ok to move on.			
Assessor thanked the child and brought the child to the parent.			

APPENDIX M

CHECKLIST FOR PARENTS' FIDELITY TO INTERVENTION PROTOCOL

Participant number: _____ Fidelity Evaluator: _____

Book: _____ Date: _____

Directions: Play the audio recording of the reading session. Use the questioning protocol and the electronic story on the iPad as guides to tally the targeted prompts for each page. Include a tally of the statements that reinforce the child's responses. Use the final column to note deviations from the script and instances that might have compromised the reading session.

Page Number	Required Prompts Included	Required Prompts Omitted	Parent Reinforcement	Comments
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				
26				
27				
28				
29				
30				
31				
32				
Total				

APPENDIX N

PARENTS' NARRATIVE RESPONSES TO PARENT SATISFACTION SURVEY

Open-ended questions:

7. How, if at all, has this experience changed your perspective regarding shared book reading with electronic books?
- Parent 1: "I don't often use e-books. After seeing how well my daughter enjoyed and comprehended the stories, I will certainly use them more."
 - Parent 2: "We will begin to use electronic books at home. My son and I enjoyed this experience."
 - Parent 3: "I realized that I can share electronic books the same way we do paper books."
 - Parent 4: "I love how interactive electronic books are. It adds another level to shared book reading."
8. What, if anything, about the intervention would you change or modify?
- Parent 1: No response
 - Parent 2: "There is nothing about this intervention I would change."
 - Parent 3: "Less frequent interruptions to the story."
 - Parent 4: No response
9. What aspect of the intervention was most valuable to you?
- Parent 1: "The questions really made her think and remember the story better. It was much more interactive."
 - Parent 2: "Comprehension development."
 - Parent 3: "The variety of questions and the introduction of retell."
 - Parent 4: "Talking and interacting with my son."
10. Further comments: Please use the back if necessary.
- Parent 1: "I'm now a fan of e-books."
 - Parent 2: No response
 - Parent 3: No response
 - Parent 4: No response

VITA

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ACADEMIC DEGREES

2015	Doctorate of Philosophy Concentration: Early Childhood Education Old Dominion University, Norfolk, VA
1981	Master of Science in Education Old Dominion University, Norfolk, VA
1972	Bachelor of Science in Education State University of New York, Fredonia, NY

PROFESSIONAL EXPERIENCE

2000 – 2015	Elementary Gifted Education Specialist Chesapeake Public Schools Chesapeake, VA
2009	Adjunct Professor Old Dominion University
2009	Early Literacy Trainer/Coach Child Development Resources
2002 – 2003	Instructor/Co-facilitator Governor's Summer Residential School for Agriculture Virginia Polytechnic Institute and State University
Blacksburg, VA	
1999 – 2000	Fifth-grade Teacher Chesapeake Public Schools

1996 – 1999	Gifted and Talented Education Laboratory Teacher Chesapeake Public Schools
1991 – 1996	Elementary Gifted Resource Teacher Virginia Beach, VA
1974 – 1991	Elementary Classroom Teacher (K, 2, 3, 4) Virginia Beach, VA
1972 – 1974	Third-grade Teacher Westport, MA

PUBLICATIONS

Salmon, L. (2014). Factors that affect emergent literacy development when engaging with electronic books. *Early Childhood Education Journal*, 42, 85-92.

Northern, L. (2007). Looking Through the Kaleidoscope: Four Perspectives of Eric Jensen. *The Constructivist*, 18(1). Retrieved from <http://www.http://www.odu.edu/educ/act/>

Northern, L. (2005). *Communications: Express Yourself*. Lead writer. National 4 – H Cooperative Curriculum System, Inc.

SELECTED PRESENTATIONS

Salmon, L. (2014). Staff Development, “Interactive Questioning Framed Your Way,” Chesapeake Public Schools, Chesapeake, VA. (November 4, 2014).

Arnett, K. & Salmon, L. Annual Gifted Education Fair, *Meeting the Social and Emotional Needs of Gifted Students*, Gifted Education Parent Advisory Committee, Chesapeake Public Schools, Chesapeake, VA. (February 2010-2014).

Arnett, K. & Salmon, L. *Growing Smart with STEM*, Hampton Public Schools, Hampton, VA. (January 28, 2013).

Salmon, L. Eastern Region Unity Educators’ Conference, *Taking the Journey: Educational Strategies for Youth Ed Teachers*, Keynote, conference facilitator, Virginia Beach, VA. (March 12-14, 2010).

Northern, L. Subregion Unity Educators Conference. *Stars on the Beach, Shining the Light on Youth Ed*, Keynote and conference facilitator. Chesapeake, VA. (March 20-21, 2009).

Matthews, C., Northern, L., Palmer, K. & Puryear, R. The NAG 55th Annual Convention and Exhibition, National Association of Gifted, *Identifying Young Gifted Children through Portfolios and the KOI*. Tampa, FL. (October 29 - November 2, 2008).

Northern, L. & Palmer, K. Annual Conference, Virginia Association of Supervision and Development, *What Every Educator Should Know About the Brain*, Williamsburg, VA. (November 30, 2007).

Matthews, C., Northern, L., & Palmer, K. The 12th Annual Virginia Conference on Gifted Education. Virginia Association for the Gifted, *Eliciting Gifted Behaviors for Early Identification*, Williamsburg, VA. (October 25 - 27, 2007).

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

1972-2015	National Education Association
1974-2015	Virginia Education Association
1996-2015	Virginia Association for the Gifted
2000-2006	National Association for Gifted Children
2000-2008	Association for Curriculum and Supervision
1996-2011	Chesapeake Education Association
1974-1996	Virginia Reading Council
1974-1996	Virginia Beach Education Association

HONORS AND AWARDS

2010	Southeastern Foodbank of Virginia
2008, 2009	Recognition of Achievement: Chesapeake School Board
2009	Elizabeth River Project
2008	Youth Community Organization Award, Chesapeake Environmental Improvement Council
1984	Windsor Oaks Social Studies Teacher of the Year

COMMUNITY SERVICE

2014- 2015 Youth and Family Ministry, Unity Renaissance, Chesapeake, VA

Third Grade Gifted Students' Community Partnerships

2009-2010 Hunger Heroes partnership with Kids Café Southeastern Food Bank (collected and donated three tons of food).

2008-2009 Literacy Lights the Way partnership with Children's Harbor (collected and donated 3,119 books)

2007-2008 The Green Team partnership with Virginia Elizabeth River Project (presented for stakeholders and government officials, created a new mascot, impacted over 3,000 people through presentations, and commitments to protect the watershed through family practices.

- 2006-2007 Eager Entrepreneurs (created own businesses earning a total of \$2,000; contributed to selected charities.)
- 2005-2006 Diversity Depot partnership with The Dwelling Place (selected and honored local heroes, created an E-book of profiles, and donated 5,000 diapers).
- 2001-2002 Cover to Cover Partnership with P.S. 16 Queens N.Y. (Donated and shipped 5,000+ books).